Volume 84
Number 19

IRON TRADE REVIEW

Cleveland, O.
May 9, 1929

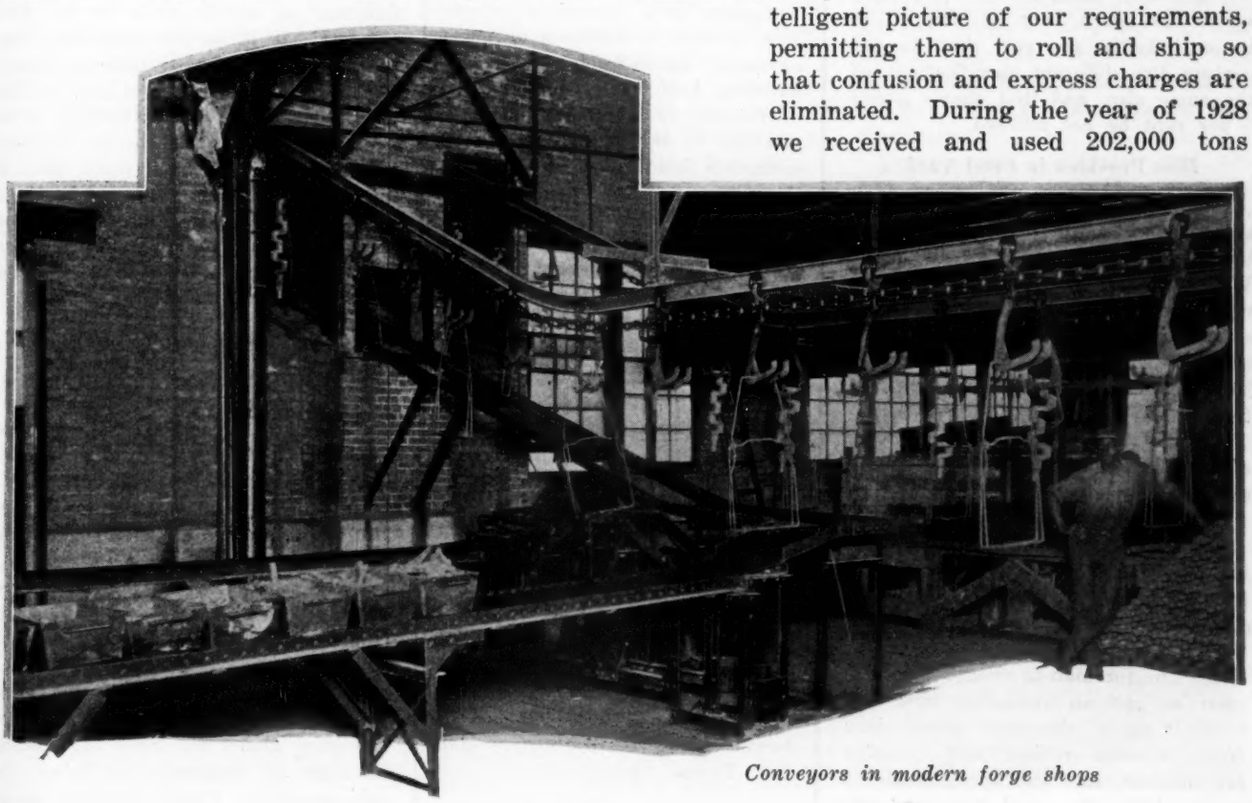
# Scheduling and Handling Material in Modern Forge Shop

## *Distinctive Marking of Steel, Accurate Scheduling and Simple Handling Operations Key to Efficiency*

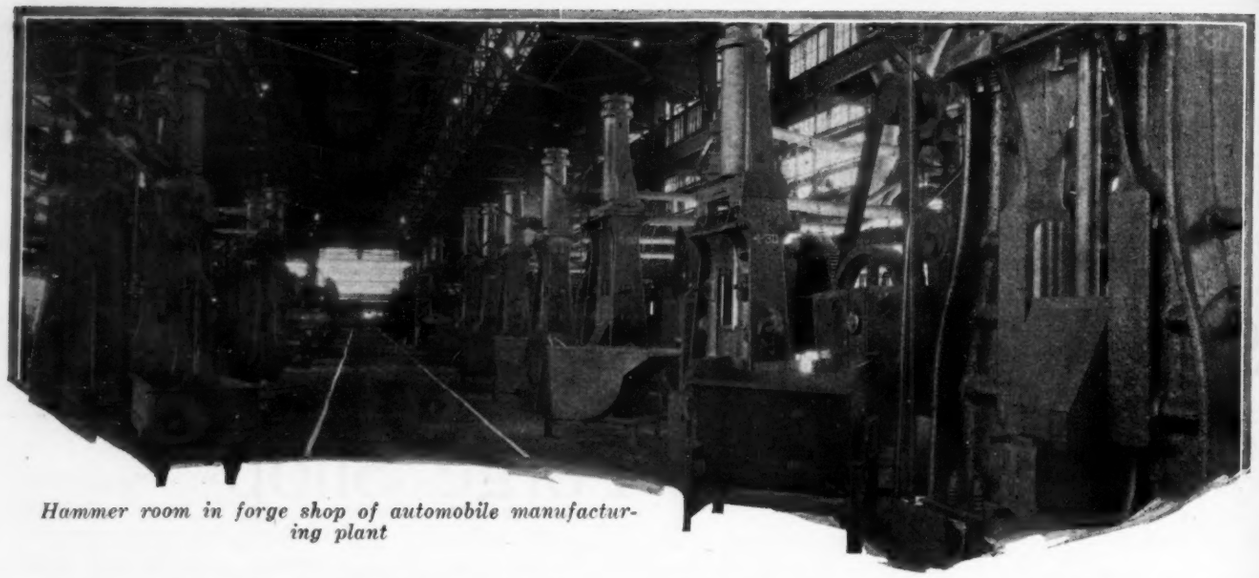
*By Hugh Dean*

***Manager, Forge Plant, Chevrolet Motor Co.***

OPERATIONS in the forge plant of the Chevrolet Motor Co. conform to a schedule, which is made up for a definite period and constitutes authority to purchase material to meet requirements during that time. The material is scheduled with sources of supply so that production can be maintained and inventories turned over at least once each week. The authorization reflects actual production figures for the month immediately succeeding its issue and tentative figures for the following months. This enables us to present to the steel mills an intelligent picture of our requirements, permitting them to roll and ship so that confusion and express charges are eliminated. During the year of 1928 we received and used 202,000 tons



*Conveyors in modern forge shops*



*Hammer room in forge shop of automobile manufacturing plant*

of steel consisting of 90 different sizes and 17 specifications from which we forged 101 parts. All steels are ordered in multiple lengths with no allowances made for re-shearing. Each specification has its own color scheme and we insist that the mills paint each and every bar. In this way the danger of mixing steels is reduced to the zero point as every man connected with the handling of the steel while unloading and shearing is given a thorough schooling in the meaning of the different color schemes. During the past year we did not have a single instance of wrong steel being used. We also insist that each heat be shipped in its entirety in one car, that no car contain two different specifications of the same size, and that shorts above 5 per cent be not allowed.

### Bins Provided in Steel Yard

Our steel yard contains 1094 bins separated by 8-inch H-beams, each bin having a capacity of 100 tons. We have four 10-ton magnet cranes used exclusively in the unloading of steel cars, the loading of flash cars and the moving of steel from bins to the shear sheds of which there are three. These sheds house seven billet shears and four alligator shears of different capacities to accommodate the various sizes of steels cut. All steels are cut cold.

When steel is received it is located in bins nearest to the shed in which it is to be cut and so placed that it cannot be confused with other steels of similar size but different specification. The foreman in charge works to what we call an unloading card that is made up by the steel record clerk from shipping notices and contains car number, size and specification of steel. After the steel has been unloaded, the foreman then enters on the card the bin number and the sample numbers. From each heat, 12 samples about 1-inch long are cut and are sent to the laboratory for physical and chemical testing. After approval, the steel is ready for use.

Steels are moved from the bins to the shears and then to the different hammers on the authority of what we call hammer cards. These cards are made up by a production clerk for a limited number of pieces and are turned in to the production office after completion when a new card is issued. This is done to enable us to better control our raw stock and reconcile it each time a bin is cleared. These cards show the number of pieces to be cut, size, specification, cutting length, location and hammer to which it is to be dispatched. It is moved from the bins to the shear tables by magnet cranes and then shoved across rollers to the different shears. After cutting it is racked and dispatched to the various hammers. From this point on, it loses its identity as steel and becomes work in process. The reason for this is the fact that productive labor has been performed on it, as shearing is a productive operation.

### Handling Work in Process

From the shear operation, our method of handling material is somewhat antiquated. For this we offer no apology. Like Topsy we "just grew," and as a result, completely lost sight of a more efficient method of handling material than that now employed by us.

From the shear, material is moved in flat racks by means of electric trucks to the hammers. At each hammer we have an end dump rack and either a box rack or a flat rack. Into the dump rack, one member of the crew places the flash eliminating the use of nonproductive labor for this operation. Flash racks are moved

## Forge Shop Practice on Higher Plane

*DURING the postwar period, management and methods in the forging industry improved to a greater extent than in the previous 50 years of forge shop development in the United States. Many of the details of this development were outlined at a session devoted to problems of management applied to materials handling held Wednesday, May 1, at Detroit, in conjunction with a meeting of the management and materials handling division of the American Society of Mechanical Engineers. The subject, as it applies to forge shops, was discussed by Hugh Dean, manager of forge plant, Chevrolet Motor Car Co., Detroit. His remarks are presented in the accompanying article.*

*Mr. Dean calls attention to the scheduling of material and to its handling while work is in process. He points to the introduction of conveyors in modern forge shops and explains the use of dump racks in the hammer and trimming departments. While Mr. Dean's remarks apply to practice in the forge plant of the Chevrolet Motor Co., the illustrations which we present in connection with this article were taken in the modern forge shops of Willys-Overland Inc., Toledo, O.*

after filling, by trucks to the scrap dock, dumped, and the flash is then loaded by magnets into cars. Into the box or flat rack whenever possible, the same procedure is followed for the forging after it has been made. In most cases, however, the forging is allowed to fall in front of the hammer where it is inspected and counted by counter inspectors. These men perform three operations—counting, inspecting, and racking, and save us the cost of laborers' and inspectors' wages.

From the hammers the forgings are moved to secondary operations such as trimming, grinding, heat treating, rattling or pickling, in racks by electric trucks with one exception and that is the cold trimming operation. At this operation, press hands place all flashings in the upper tier and the trimmed forgings in the lower tier of a two-high conveyor. The conveyor then empties the forgings at one end into an automatic tumbling barrel where they are rattled and emptied into a conveyor sorting table where they are inspected and sorted ready to be shipped. At the other end, flashings are emptied into a dump rack which in turn is emptied every hour. Our method of handling both raw and finished material so far has been entirely in racks by electric trucks.

It has been the consensus of opinion on the part of the management of the forging industry in general that conveyors or the automatic handling of forgings was never intended for forge shops. We have disapproved this theory so convincingly that we are preparing a program that will entail entire revamping of the present shop. Early last year we started the erection of a plant to be devoted exclusively to the manufacturing of crankshafts. We made up our minds to have it as nearly automatic as humanly possible.

### Use Conveyors for Crankshafts

We designed automatic furnaces for heating the raw stock, monorails for handling the crankshaft to the press where it is trimmed, to the upsetter where is is flanged, to the restrike hammer where it is restruck in two positions, and finally monorailed to an overhead conveyor to the heat treat. The crankshafts are then placed on carriers while still hot and automatically shoved through the quench heat on a two-minute 20-second cycle. At the discharge end of the quench furnace they are picked off by fingers that are so perfect in their operation that they are nearly human. They are then quenched and placed on carriers and shoved through the draw heat. From here they are carried by gravity conveyors to straightening presses, straightened and placed on pickling baskets, pickled by automatic pickling machines and the same baskets taken to the grinders. Here the crankshafts are ground for brinell and placed on a continuous slat conveyor where they are brinelled, indexed, inspected, and conveyed into cars. Our method of handling flash and tong ends is also automatic. Flashings and ends are placed on a conveyor by a member of the hammer crew and conveyed to cars.

---

More than $500,000 was paid in pensions by the General Electric Co. in 1928, the majority of the $514,495 going to pensioners from the various apparatus works. Since the inception of the pension plan in 1912 a total of $2,129,471 has been paid through 1928.

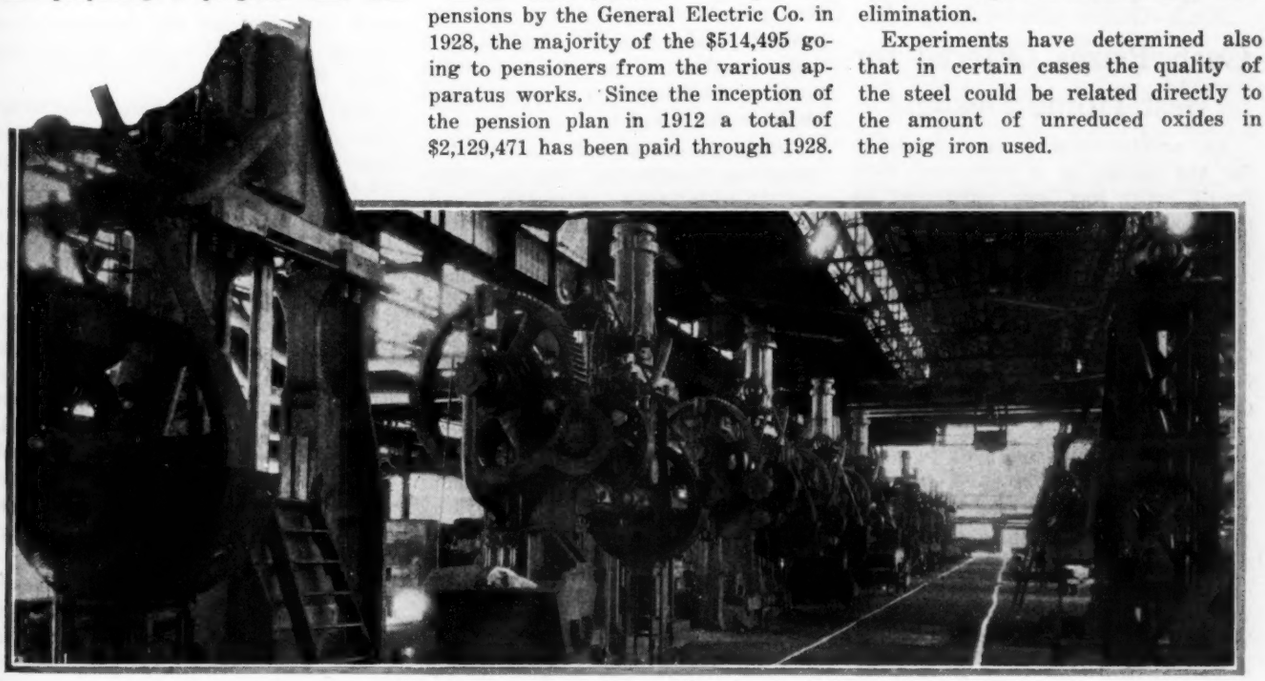
## Unreduced Oxides in Pig Iron Affect Steel

A study of the origin of nonmetallic matter in pig iron and its behavior in steelmaking processes, being conducted at the Pittsburgh experiment station, bureau of mines, in co-operation with the open-hearth committee of the American Institute of Mining and Metallurgical Engineers and the Bourne-Fuller Co., Cleveland, has shown that nonmetallic matter always is present in any grade of pig iron, but that it is present in fairly small amounts unless the blast furnace is working irregularly. The average percentage in 61 samples of basic pig iron was 0.0272; in 50 samples of bessemer iron, 0.0223; and in 15 samples of foundry iron, 0.0078. The oxide content of the metal is increased during transfer from one vessel to another, such as from the blast furnace to the mixer or from the mixer to the open hearth, due to oxidation of the metalloids in the iron.

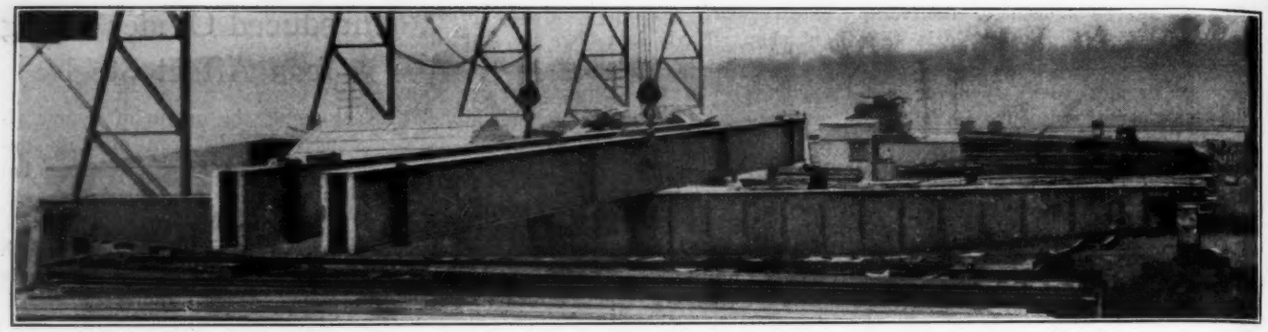
Whenever the blast furnace is operating irregularly the percentage of nonmetallic matter may go as high as 0.15 to 0.20 per cent.

These nonmetallics are composed of silica and iron and manganese silicates, and analyze approximately 50 per cent silica, 30 per cent iron oxide, 15 per cent manganese oxide and 5 per cent alumina. When pig iron is converted into steel some of these unreduced oxides remain in the steel and it has been shown that high temperatures, high residual manganese and fluid slags are favorable for their elimination.

Experiments have determined also that in certain cases the quality of the steel could be related directly to the amount of unreduced oxides in the pig iron used.



*Dump racks are employed at hammers and presses for work in process*



*Crane girder being given 100 per cent overload test. The resulting deflection was ½-inch*

## Overload Test Made on Arc-Welded Girder

An overhead traveling crane of 10-ton capacity and 80-foot span with the bridge girders as well as the truck and trolley end trucks completely arc-welded was recently completed by the Cleveland Crane & Engineering Co., Wickliffe, O. The accompanying illustration shows one of the bridge girders being tested for deflection. Since the rated capacity of this crane is 10 tons, each girder must carry a live load of 5 tons plus one-half the weight of the trolley, the total weight of which is 6 tons.

In the test shown each girder was subjected to a load of 16 tons or exactly 100 per cent overload. The deflection was ½-inch. While this company has built several cranes with all arc-welded girders including some for heavy duty steel mill service, it is believed that this 80-foot span crane is the longest to be made in this manner.

## Cash Prizes Offered for Best Home Designs

An architectural prize competition for the design of a structural steel frame house has been announced by the Connecticut Architectural League Inc., in co-operation with the American Institute of Steel Construction Inc. The cash prizes for this contest have been contributed by the Colorado Fuel & Iron Co., Denver, National Bridge Works, Long Island City, N. Y., and Steel Frame House Co., Pittsburgh.

Professor Edwin Avery Park of the Yale School of Fine Arts, New Haven, Conn., has been nominated professorial advisor, and to him all drawings are to be addressed. The contest closes May, 10, 1929. The jury of award consists of Charles Wellington Walker, architect, Bridgeport, Conn.; Alfred W. Boylen, architect, New Haven, Conn; E. N. Adams, district engineer for the American Institute of Steel Construction Inc., Worcester, Mass.

The first prize will be $300, second prize $200, and third prize $100. The Steel Frame House Co., Pittsburgh, will pay $100 for the working drawings of any design selected by that company from the contestants. It is proposed that no house in this competition shall cost more than $30,000.00, and the cost of the proposed house shall be determined by the cubage price at 60 cents per cubic foot.

## Machine Tool Exposition Exhibitors Listed

Some 230 exhibitors will be represented in the second National Machine Tool Exposition to be held in Public Auditorium, Cleveland, Sept. 30-Oct. 4, under auspices of the National Machine Tool Builder's association. The latter organization has just issued a list of the participants. Somewhat more space will be required this year than was utilized in 1927. The exposition will include displays and demonstrations of machine tools, supplies, accessories, and processes and methods in their use.

Attendance again will be limited to industrial executives, buyers, users and others interested in machine tools. A registration identification system will govern admission. Concurrent with the exposition will be sessions of the Machine Tool congress, Society of Automotive Engineers and machine shop practice division of the American Society of Mechanical Engineers.

Arrangements for the exposition are in the hands of the following committee: J. Wallace Carrel, Lodge & Shipley Machine Tool Co., chairman; P. E. Bliss, Warner & Swasey Co.; Ralph E. Flanders, Jones & Lamson Machine Co.; Robert M. Gaylord, Ingersoll Milling Machine Co.; James E. Gleason, Gleason Works; Henry Bucker, Brown & Sharpe Mfg. Co.; with Roberts Everett, 225 West Thirty-fourth street, New York, manager.

## Absorbs Changes Rapidly, Says Kettering

More than 3000 business men attended the seventeenth annual meeting of the United States chamber of commerce at Washington last week. Practically every phase of commerce and industry was discussed in the many sessions and round table conferences held in conjunction with the meeting.

Julius H. Barnes, in the opening session, declared that organized business today is possessed of a larger measure of public confidence than ever before and that it is for business leaders to maintain these standards.

C. F. Kettering, research laboratories, General Motors Corp., emphasized the shifting characteristics of this age. "Business must change," he said. "New people born into the world force new things. We must change in the way the consumer demands. We must prepare to change intelligently to meet future demands. We must make the changes smoothly with little loss to the community or to the individual. But change we must, inevitably."

Mr. Kettering stated that one thing that distinguishes the United States from the rest of the world is not its waste, but its ability to absorb change rapidly. We displace goods to other users and other uses more rapidly than any other group of people, he declared.

Representative W. C. Hawley, chairman of the house, ways and means committee, emphasized changes in competitive conditions during recent years which necessitate tariff readjustments. He declared that new articles have been produced or old articles have been turned out in new form. Scientific research has astonished men with its proficiency in relation to its production of commodities; new machinery has been devised and new competitors have entered upon new fields of competition in the business and industrial world.

## Brooklyn Fabricators in New Organization

Iron Masters of Brooklyn and Long Island Inc. has been formed as a successor to the Iron League of Brooklyn and Long Island, an unincorporated association. The new organization is composed of 125 members, representing various fabricators, dealers and contractors in iron and steel.

Louis Klaff, Eveready Iron Works, is president; Leonard Sabino, Mansfield Iron Works, vice president; Harry Posner, Gold Seal Iron Works, treasurer; and George H. Kennedy Jr., David H. Smith & Sons Inc., secretary.

Members of the executive board are: Samuel Kalter, Kalter Iron Works; Aaron Schlecker, Schlecker & Alper; Jack Holland, Simon Holland & Son; David Gaynor, Gaynor & Rosenblum; Jesse Eisen, Kusel & Eisen; Jacob White, Jacob White Iron Works; Jacob Cutler, Hygrade Iron Works; Abraham Jordon, A. Jordon Iron Works Inc.; and Irving J. Linsky, Dependable Iron Works. George Boochever, 959-965 Flatbush avenue, Brooklyn, is the organization's counsel.

The new organization will continue the work of the Iron League of Brooklyn and Long Island, which has dealt primarily with the building field. This work has included studies in cost accounting, arbitration of business disputes, an exchange of accurate credit information on builders to determine prior to delivery of materials or supplying labor whether there is a reasonable expectation of obtaining payment and various other trade activities.

## Employment at Highest Point in Two Years

Employment in the United States has increased 0.8 per cent in March compared with February and payroll totals increased 1 per cent, according to the bureau of labor statistics. Manufacturing employment stood at a higher level in March than at any time since April, 1927, and payroll totals were greater than at any time since November, 1923.

Taking 1926 at 100, March employment index number for iron and steel industry was 95, compared with 94 for February and 91.5 for March of last year, while the payroll index number for March was 102.2, compared with 100.2 for February, and 92.5 for March of last year.

Cast iron pipe employment index for March was 73.4, compared with 69.1 for February and 80.8 for March, for March had an index number of 1928, while payrolls in that industry 69.9 compared with 70.3 for February and 80.5 for March of last year.

March index number for employment for the structural ironwork industry was 98.1, compared with 97.6 for February and 89.4 for March of last year, while payrolls for March were 99.3 compared with 99.2 for February and 91 for March of last year.

Machine tool March employment was 129, compared with 124.3 for February and 89.9 for March of last year, while payrolls were 142.3 for March, compared with 138 for February and 98.2 for March of last year.

## Pump Manufacturing in 1927 Larger

Manufacturers of pumps and pumping equipment in 1927 numbered 278, employed 18,671 wage earners, paid them $27,118,924, used materials costing $52,765,023 and turned out products valued at $130,591,191, states the department of commerce. Compared with 1925, this is an increase in every department, as the following comparison reveals:

| | 1927 | 1925 |
|---|---|---|
| Number of establishments | 278 | 253 |
| Wage earners (average for the year) (1) | 18,671 | 17,935 |
| Wages (2) | $ 27,118,924 | $ 25,278,060 |
| Cost of materials, factory supplies, fuel, and purchased power, total (2) | $ 52,765,023 | $ 50,328,435 |
| Materials and supplies | $ 51,252,734 | (3) |
| Fuel and power | $ 1,512,289 | (3) |
| Products, tot. val. (2) | $130,591,191 | $120,148,157 |
| Pumps and pumping equipment, including parts and attachments (for detail see Table 2) | $109,865,819 | $106,240,893 |
| Other products, value, and receipts for custom work and repairing | $ 20,725,372 | $ 13,907,264 |
| Value added by manufacture (4) | $ 77,826,168 | $ 69,819,722 |
| Horsepower | 64,763 | 56,470 |

(1) Not including salaried employes.
(2) Amount of manufacturers' profits cannot be calculated from the census figures, for the reason no data are collected in regard to a number of items of expense, such as interest on investment, rent, depreciation, taxes, insurance and advertising.
(3) Not reported separately.
(4) Value of products less cost of materials, factory supplies, fuel, and purchased power.

## Large Casings Riveted

Walsh Steam Boiler Works, Holyoke, Mass., has just completed one of its largest jobs, two spiral casings and two draft tubes for 31,000-horsepower turbines, to be installed at Great Falls, Mont., for the Montana Power Co. The inlet diameter of each casing is 21 feet 3 inches, and each complete weighs 91 tons and contains four tons of rivets. The casings and draft tubes are made of steel plates, ⅜ to ⅝-inch thick. The plate is formed on rolls and joined with riveted lapped joints.

## Institute Revises Iron and Steel Capacities

The American Iron and Steel institute has just completed its annual survey of pig iron and ferroalloy, steel ingot and steel castings capacities in the United States as of Dec. 31, 1928. Pig iron capacity, including ferroalloys made in blast furnaces, totaled 51,233,895 gross tons, as against 50,532,350 tons on Dec. 31, 1927, the increase being 701,545 tons or 1.38 per cent. Steel ingot capacity amounted to 61,759,466 tons, a gain of 2,323,700 tons, or 3.92 per cent, over the 59,435,766 tons on the last day of 1927. Steel castings capacity, however, of 2,024,923 tons decreased 4411 tons, or 2.17 per cent, from the 2,029,334 tons as of Dec. 31, 1927. Detailed figures according to processes of manufacture with comparisons with 1927 are as follows:

**Pig Iron and Ferroalloys**

| | Dec. 31 1928 | Dec. 31 1927 | gain or loss |
|---|---|---|---|
| Pig iron | 50,531,665 | 49,808,320 | + 723,345 |
| Ferroalloys | 702,230 | 724,030 | — 21,800 |
| Total | 51,233,895 | 50,532,350 | + 701,545 |

**Steel Ingots**

| | | | |
|---|---|---|---|
| Basic open-hearth | 51,389,625 | 49,238,410 | +2,151,215 |
| Acid open-hearth | 1,088,185 | 1,058,500 | + 29,685 |
| Bessemer | 8,513,000 | 8,331,000 | + 182,000 |
| Electric | 741,670 | 760,270 | — 18,600 |
| Crucible | 26,986 | 47,586 | — 20,600 |
| Total | 61,759,466 | 59,435,766 | +2,323,700 |

**Steel Castings**

| | | | |
|---|---|---|---|
| Basic open-hearth | 780,175 | 776,727 | + 3,448 |
| Acid open-hearth | 693,715 | 712,385 | — 18,670 |
| Bessemer | 49,188 | 66,383 | — 17,195 |
| Electric | 499,450 | 471,404 | + 28,046 |
| Crucible | 2,395 | 2,435 | — 40 |
| Total | 2,024,923 | 2,029,334 | — 4,411 |

## Make More Slab Zinc

Output of slab zinc at zinc reduction plants in the United States in 1928 totaled 651,247 short tons valued at $79,452,000, states the federal bureau of mines, Washington. This was an increase of 3 per cent in production over 1927. Montana led last year in output of primary metal with 158,221 tons. Pennsylvania was second with 108,802 tons, Oklahoma third with 106,557 tons, and Illinois fourth with 103,765 tons.

## Shipments Make Big Gain

Shipments of Cutler-Hammer Inc., Milwaukee, manufacturer of electric controlling devices, in the first quarter increased nearly 21 per cent over last year, according to Henry F. Vogt, treasurer. Shipments amounted to $2,663,000 for the quarter, a gain of $457,265 over the same period of 1928. The Milwaukee plant is being operated at capacity.

# *Steel Cast and Welded, Copies Ancient Craft*

WELDING plays an important role in a new art developed by a Los Angeles steel castings company, that of reproducing highly ornamental architectural units of the old or new schools for houses or fine commercial and public buildings. The process is simple, and the results are said to equal or surpass

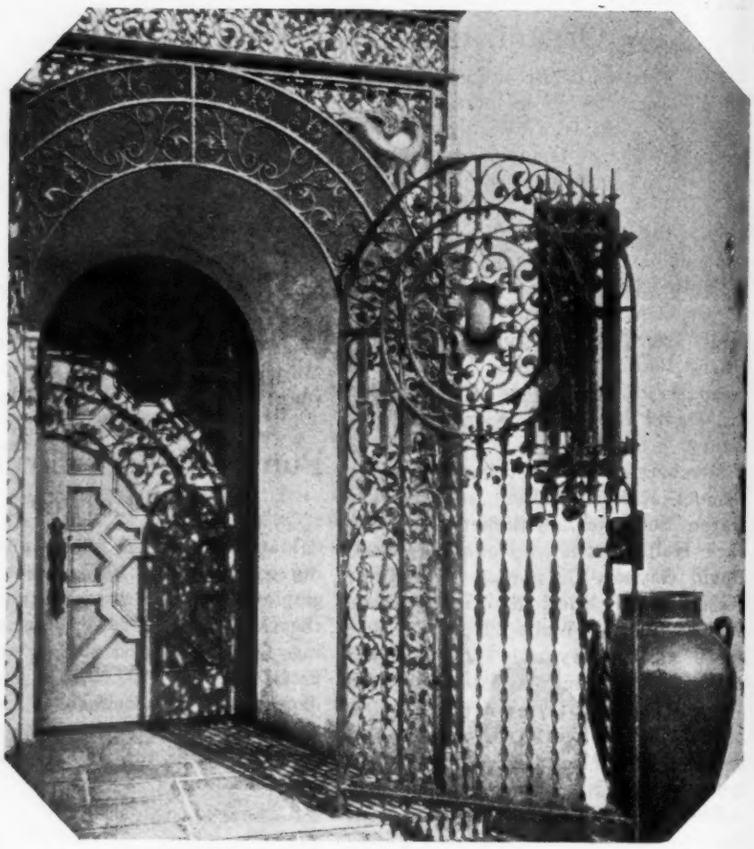
*Craftsmen carve mahogany into patterns for the castings*

the effects obtained by means of hand forging.

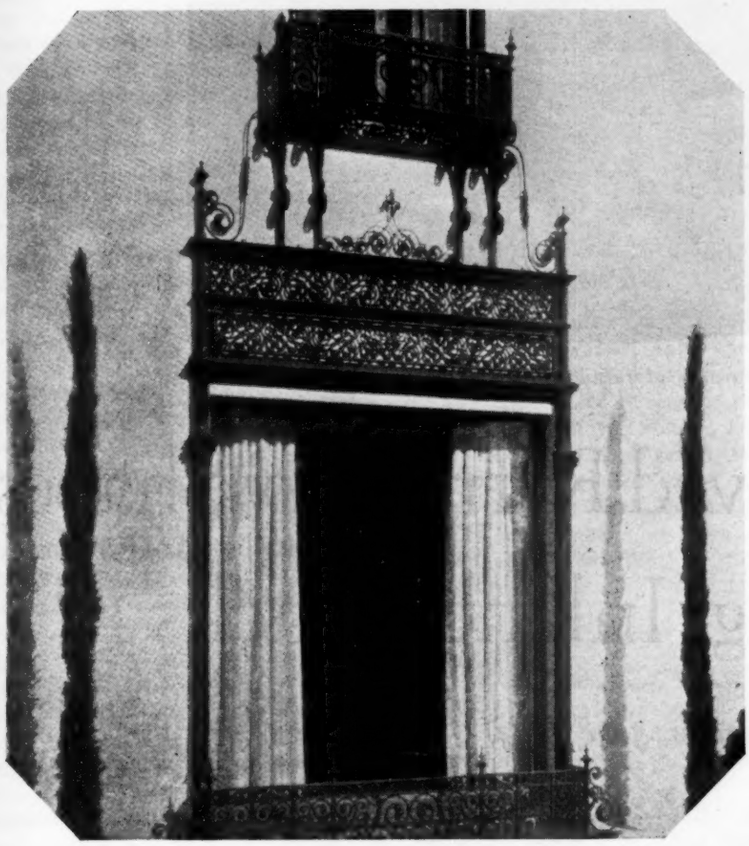
The architect traces the motifs that he desires to reproduce, specifying dimensions and other details. These may be original with him, or copies of specimens of ancient craftsmanship. The maker of the architectural steel units then has these designs modeled in smooth-grained mahogany. The models are hand carved by craftsmen who were trained in European schools.

### Steel Castings Made

Castings of electric steel are made from these models, and on these castings etchers', engravers', and chasers' tools are brought into play, in the hands of skilled artisans. When ready for assembling the various parts are



*Examples of exquisite doorways and fireplaces. The art lends itself to interior or exterior architectural forms*



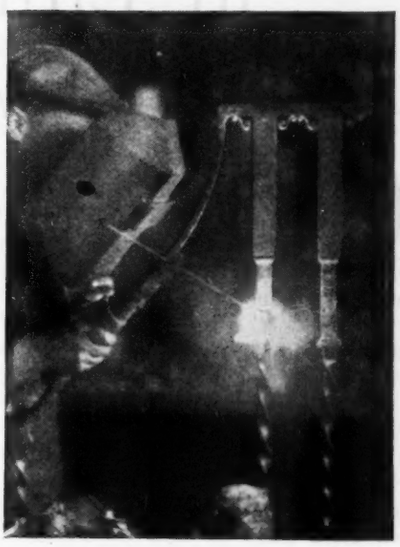
*A balcony of cast steel parts, assembled by welding; and, below, stair rail, chandelier and candelabra*

joined by electric welding, no joint being visible when the work is finally completed. No rivets, bolts or screws are used in the assembly.

Great attention is given to the finish, which may be bright or dull. The mellow effects of age may be simulated. Lacquers, polychrome treatments and gilding are used to obtain various decorative effects.

### Duplications Facilitated

While hand wrought iron architectural shapes must be fashioned piece by piece, no matter how often each piece may recur in an elaborate design, one model serves the purpose for all duplicate castings used in the new method. Every design is studied. Parts that are uniform are segregated, and these cast from one model. Little work is left to be cast independently, saving labor, time and expense. The same motifs, in the same art, may be carried out in all manner of incidental fittings and furnishings.



*The electric torch replaces the armorer's forge of ancient days*

Economy of this method of production is enabling the builders of small artistic types of homes to use various units. They are being used extensively in theaters, churches, hotels, apartments, office and bank buildings, and to a growing extent in industrial architecture.

The ornamental metal detail shown on these pages faithfully recreates the hand-wrought iron of early Italy. The information and illustrations are taken from a booklet "Electro-Art Steel," issued by the Kay Brunner Steel Casting Co., Los Angeles, which originated the method described.

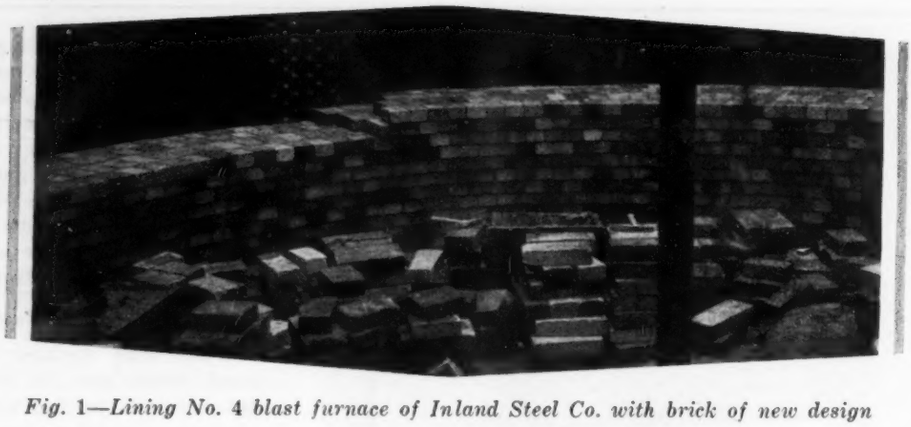


*Fig. 1—Lining No. 4 blast furnace of Inland Steel Co. with brick of new design*

# Employ Improved Refractory Shapes in Lining Inland Stacks

*By F. J. Binckes and H. W. Lindhardt*

THE strength of a refractory wall depends largely upon the method adopted for laying the bricks so that horizontal and vertical joints are broken. Several joints coming immediately above one another tend to produce a plane of weakness from which cracks originate. Different methods of bonding have been worked out by masons to overcome this weakness, and for straight wall work the shapes commonly used are capable of giving satisfactory results. When brick work is used for lining circular structures, such as blast furnaces, the necessity of effective bonding is of greater importance than in a straight wall. The shapes available, however, are not as well designed to attain the effective bonding.

The usual method of laying brick work in a circular section is by means of standard keys and standard straights. No. 1 key brick is designed to turn a circle of 11 feet 3 inches diameter and by the introduction of straight bricks, alternating with keys, larger circles can be more or less accurately laid up. In walls of considerable thickness each course is composed of several rings and the joints between rings are broken by using 13½-inch bricks for one ring and 9-inch bricks above. But because the standard 9-inch brick is 5⅜ inches on the front end and the standard 13½-inch brick is 5 inches, it is not possible to break all joints on the inner face of the wall. If we start with a perfectly broken joint, the difference in end dimensions will cause a creep so that in seven bricks one joint will come immediately over the joint in the course below. In brick work of three or four rings in thickness it is not uncommon to find several joints lining up in this manner all the way back to the shell.

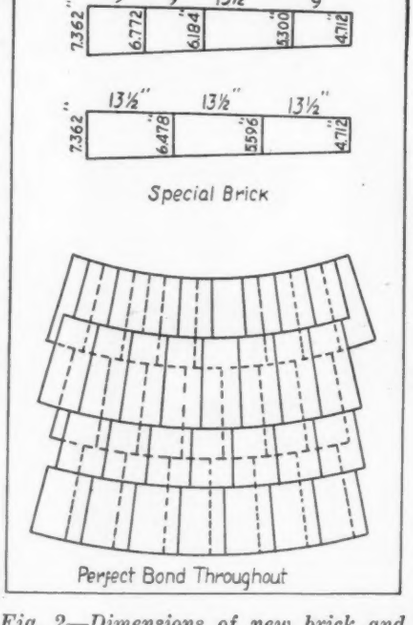



*Fig. 2—Dimensions of new brick and sketch of wall, showing broken joints afforded by Inland-Stuart bond*

Through the efforts of Robert Smith, master mason, Inland Steel Co. and Wallace A. Stuart, a form of brick has been developed which eliminates continuous joints both horizontal and vertical. The final result is a perfect bond throughout the entire furnace lining. This brick is covered by U. S. Patent No. RE-16,697 and pending applications owned by Inland-Stuart Linings Inc., Koppers building, Pittsburgh. The Inland Steel Co. has secured a license from the latter company covering their several linings.

The shape of the individual bricks is shown in Fig. 2. Each set of taper bricks forms a sector of a circle and the inside end dimensions of the 13½-inch and the 9-inch bricks are equal. When laid with the correct number of straights to form the desired diameter circle, the joints all stagger perfectly, as indicated in Fig. 2.

Seven shaped bricks and two straights are required for an average furnace lining—double the number of varieties required when using standard brick. Contrary to expectation, this greater variety of shapes does not cause confusion and delays when lining the furnace.

Once the scheme of laying brick has been established, the bricklayer does not have to give constant thought to the breaking of joints and the cutting when necessary. By vir-

F. J. Binckes is assistant chief engineer, Inland Steel Co. H. W. Lindhardt, now superintendent of blast furnaces, Colorado Fuel & Iron Co., formerly was blast furnace superintendent, Inland Steel Co.

tue of the design of the brick, joints are broken automatically. This saves time in laying up a wall.

The average size of the new brick is 10 per cent larger than that of standard brick, and this results in an increased volume of brickwork laid for a given number of bricks handled.

Owing to the number of brick shapes, provision must be made carefully to schedule all material sent into the furnace so that the correct number of the various kinds is immediately available for the bricklayers. Experience has shown that the effort made to do this has resulted in faster work on the part of the bricklayers.

The design of this new lining was under consideration for several years and when perfected was first used in the construction of No. 4 blast furnace built at Indiana Harbor in 1925 by the Inland Steel Co. Fig. 1 shows clearly the relative position of the brick joints. After 2½ years of operation, during which time No. 4 furnace had produced 610,000 tons of iron, an inspection was made of the furnace top where the face of the brick was found to be very uniform, with no indications of fire cracks in the walls either vertically or horizontally.

The Inland Steel Co. has adopted this design as its standard. Nos. 1, 2, 3 and 4 furnaces have been lined in accordance with this new practice, which is known as the Inland-Stuart bond.

## Studies Decarburization in Steel Hardening

One of the most important investigations now under way in the engineering research laboratories of the University of Michigan, Ann Arbor, Mich., is a study of the decarburization of steel in hardening furnaces, undertaken for the American Gas association.

Decarburization of steel, according to the scientists, is a phenomenon not entirely understood. It is known, however, that when high carbon steel is heated in a furnace to temperatures from which it may be hardened, the carbon on the surface of the steel, under certain conditions, combines with some of the constituents of the furnace atmosphere to form a gas and leaves the steel. This loss in carbon at the surface of the steel is called decarburization, and results in the production of a relatively low-carbon steel on the surface. When the steel is quenched—that is immersed, usually in oil or water—the low-carbon surface does not respond to the heat treatment and results in a soft surface.

The study of this phenomenon is of the highest industrial importance, as carbon steel of this type is used in the manufacture of automobile gears, cutting tools and many other articles subjected to great wear. Naturally, steel which has suffered decarburization causes failure in the part in which it has been used.

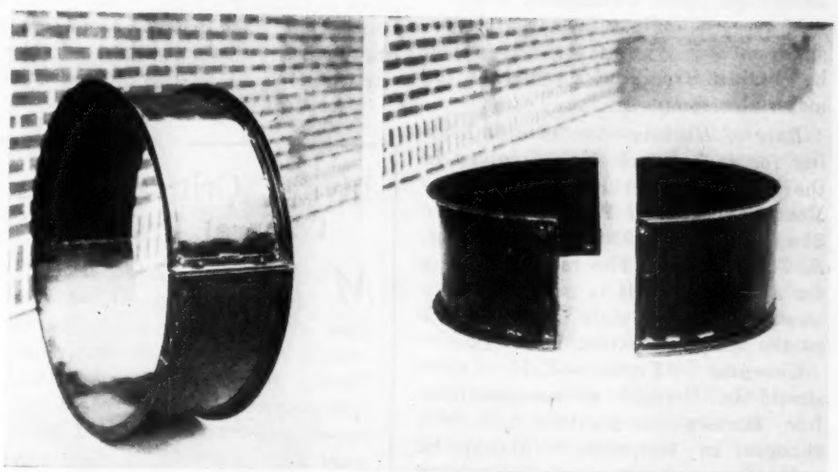
Investigations in the university laboratories, which have been in charge of W. E. Jominy, investigator in the department of engineering research, have not yet reached anything approaching final conclusions, but several interesting facts have already been brought to light, and conclusions will be made public as soon as the results of the laboratory experiments have been thoroughly verified.

## Cartel Tendency Spreads in Europe

Even the smaller industrial countries of Europe are feeling the rapid spread of the cartel movement, states the National Industrial Conference board, New York, in a report on current economic developments in foreign countries. American economic penetration of Europe, indicating a significant reversal of the flow of capital and industrial enterprise between the two continents, is also noted.

French industry is reported to be returning to normalcy. High production costs are a handicap in Italy. In Russia the present problem is that of keeping the peasantry in line while the industrial structure is being built up, as agriculture remains the chief source of income available to the soviet states.

## Constructs Concrete Forms from 14-Gage Sheet Steel by Welding



*Oxyacetylene welding was employed in making this concrete form for the base of a gasoline pump*

FOR certain types of concrete work inexpensive forms of welded sheet steel can be employed. In the accompanying ilustration is shown a form designed by a Long Island contract welding shop for a company which builds gasoline filling stations. It is used in the construction of concrete pedestal bases on which gasoline pumps are mounted.

The sheet steel form for this purpose posesses several distinct advantages. In the first place, it does not stick to the concrete upon removal after the mixture has hardened, and, secondly, it can be removed simply by loosening four bolts. The chief advantage, however, lies in the fact that the form can be used over and over again, its sturdy construction assuring long life. The forms are not heavy to handle.

These forms are fabricated by the oxyacetylene process quickly and economically. They are made in two sections which when bolted together form a ring 30 inches in diameter. Each section is made by tack welding 14-gage sheet steel top and bottom to two pieces of 1 x 1 x ⅛-inch angle iron which have been bent so as to form semicircles. Holes for ⅜-inch bolts are cut with the blowpipe in the ends of the angle iron pieces which project and form lugs for bolting the two sections together.

# Recommends General Procedure in Tool Steel Heat Treatment

## *American Society for Steel Treating Suggests Tentative Hardening Practice Which Is Applicable to All Types of Material*

OFTEN when correct temperatures are used in heat treating tool steel, many hardening failures result from improper manipulation of the process. The heat treatments given in the recommended practices of the American Society for Steel Treating apply specifically to certain types of steels, the basic compositions of which are given. This does not imply that such steels are the only suitable ones; these practices are primarily for the purpose of recommending heat treatments.

If more specific information is desired on any type of steel, it should be obtained from the supplier of the material.

*Rate of Heating*—The rate of heating for carbon tool steels is given in the "Recommended Practices for the Heat Treatment of Plain Carbon Tool Steel" on pages 93-96 of the *A. S. S. T. Handbook*. The rate of heating for alloy tool steels is proportionately slower than for plain carbon steels as the alloying content increases.

*Charging Furnace*—Cold tools should be charged at comparatively low furnace temperature. Sudden changes in temperature should be avoided, except where steels such as high speed are changed from preheating furnaces to high heating furnaces purposely to obtain rapid heating. It is especially important to avoid sudden changes when reheating hardened steel, as breakage may result.

The steel should be placed in the furnace so as to expose the maximum surface. It is often advisable to place supports under the tool to raise it from the furnace bottom, thus allowing better heat circulation. An intricate tool should be supported in such a manner as to avoid warping.

*Large Sizes*—A range of temperature usually is given in recommendations for hardening heats. This does not imply that satisfactory results can be obtained on any tool if held anywhere within that range. Generally the larger pieces are heated to the high side of the range while small pieces are heated to the low side.

*Uniform Heating of Tools*—Cylindrical tools or intricate parts that have a tendency to heat nonuniformly should be rotated frequently.

*Holding at Heat*—Care should be taken to hold the tool at temperature long enough to insure uniform heating throughout the section of the piece. Usually, steel of higher alloy contents will require more time, as noted in specific recommended practices. This gives a better solution of the constituents, but may cause some grain growth and surface decarburization, particularly at temperatures well above the critical range.

For the time of holding high-speed steel at quenching heat, see the recommended practice covering this steel.

*Furnace Atmosphere*—Proper control of furnace gases is important. As far as possible, a reducing atmosphere should be maintained at all times. Flames should not strike the steel.

*Effect on Scale*—If tool steel is heated above a low red heat while in contact with scale, even though in a neutral or reducing atmosphere, it will be decarburized. Therefore, care should be taken to keep steel, furnace hearth, and containers as free from scale as possible.

*Thermocouples*—The thermocouple should be so placed that the flames do not strike it and so located as to indicate as nearly as possible the temperature of the tool.

It is generally better to insert the thermocouple through the end or side of the furnace rather than in the top. For specific instructions on pyrometry see the *A. S. S. T. Handbook*.

### Cooling

*Quenching Medium*—The quenching medium should vary with the kind of steel treated as well as the speed of cooling necessary for various types of tools. Sufficient bath volume should be provided to maintain the quenching medium at proper temperature for uniform results. The use of air as a means of agitation and cooling for liquid baths is not recommended.

*Oils*—Oils generally give best results when used between the temperatures of 75 and 125 degrees Fahr. Some oils crack or otherwise deteriorate faster than others; consequently, should be replaced as found necessary.

*Water*—Water should be held at a fairly constant temperature, usually between 70 to 110 degrees Fahr. Fresh tap water often is aerated and may produce soft spots, so that water which has been previously boiled, or has been used frequently, is recommended. A strong stream of water

### Invites Criticisms on General Practice

*MUCH of the procedure for the heat treatment of one type of tool steel is applicable to others. Therefore, the American Society for Steel Treating has just prepared a tentative general recommendation for the heat treatment of tool steels, in this way seeking to avoid repetitions in recommended practices prepared by the society from time to time. The instructions set forth on the accompanying page constitute a tentative recommended practice and will remain tentative for at least one year, until adopted by the board of directors and the recommended practice committee of the society. This practice is not intended for a specification and should not be interpreted as such. Criticisms of this tentative practice are solicited and should be directed to J. E. Donnellan, secretary, recommended practice committee, American Society for Steel Treating, 7016 Euclid avenue, Cleveland.*

will produce better results and help to throw the scale, while a spray sometimes gives more uniform results.

*Brine*—Tools quenched in brine will more readily throw their scale, producing a cleaner surface of more uniform hardness.

*Air*—Certain types of tool steels require air cooling. When using an air blast, it should be applied through a properly designed device and care should be taken to avoid the presence of water in the air line. If tools are cooled naturally without blast they should be supported so as to allow uniform cooling.

*Quenching*—Tools should be quenched in such a manner that warping is at a minimum. When immersing tools avoid the formation of gas pockets by vigorous agitation or by jets. It is important that the cooling medium come in contact with all parts of the work to be hardened. Tools should usually be removed before reaching the temperature of the quenching bath. For specific instances see the "Tool Steel Recommended Practice in the *A. S. S. T. Handbook*.

### Tempering

*Strains*—Tools, after removal from the quenching bath and before tempering, are always in a highly and nonuniformly strained condition and danger of cracking is most pronounced. Tools should not become cold before tempering.

*Uniform Tempering*—Satisfactory tempering results are obtained by heating slowly and uniformly in a freely circulating medium. If a liquid is used, the tools should be placed in a metal basket for immersion which prevents contact with the sides or bottom of the container.

*Charging the Tempering Furnace*—When charging tools for tempering, the heating medium should be at a low temperature and the tool still warm.

*Rate of Heating*—Tools should be brought to heat slowly to prevent rapid release of hardening strains and warpage. Better results are obtained by holding at a lower temperature for a longer time. Generally the length of time should not be less than one hour at temperature, but for specific steels reference should be made to the tool steel recommended practices.

*Cooling from Tempering*—Slow cooling from the tempering operation is recommended, since rapid cooling may induce strains in the steel.

*Tempering by Color*—Temper colors are the result of slight oxidation of the surface of steel when heated at low temperatures, and are dependent

(*Concluded on Page* 1267)

# World's Largest Testing Machine Breaks New York Bridge Cables

THE first official tests of the world's largest universal testing machine were made May 2, at the Trenton, N. J., plant of John A. Roebling Sons Co., before a group of visiting engineers. The machine which is shown in the accompanying illustration and which is capable of testing wire cables for tensile strength up to 2,000,000 pounds was built by Riehle Bros. Testing Machine Co., Philadelphia, to fill requirements imposed by the construction of the new Hudson River bridge.

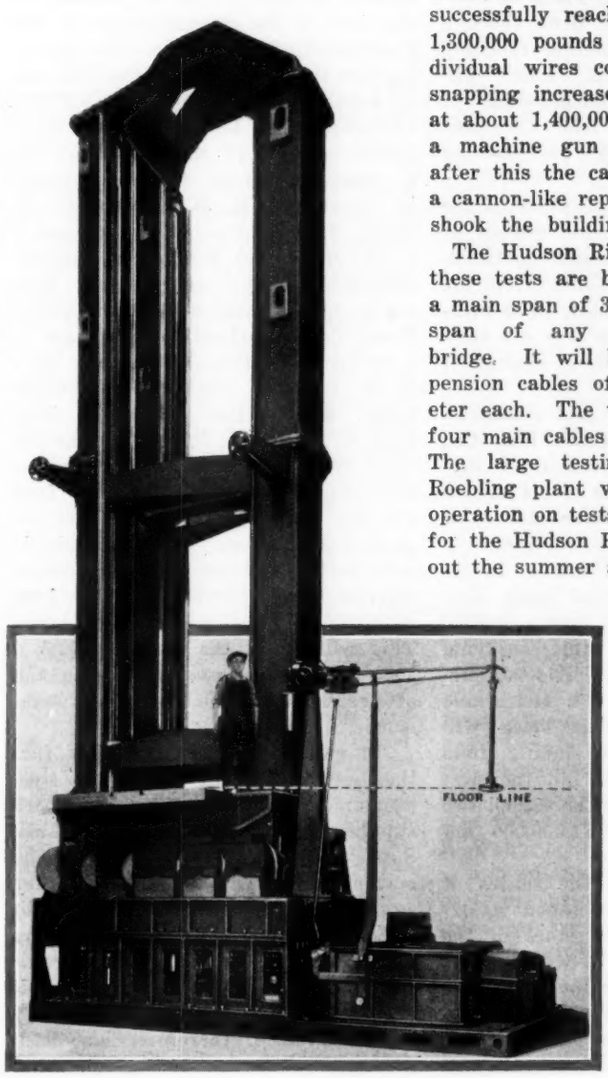
This machine is of the reverse-screw universal type designed primarily for tensile strength testing of large wire cables. The load is supplied by three 38-foot steel screws. A detailed description appeared on Page 784 of the Sept. 27, 1928 issue of IRON TRADE REVIEW.

The tests were of the 3-inch diameter suspender rope. Loops made up and suspended over an upper sheave carried the load on fittings fastened to the suspended ends. Thus the strength of two ropes was in test. Bridge specifications require this loop to sustain a load of 1,200,000 pounds.

### Engineers Watch Spectacle

Under dramatic conditions with a circle of engineers formed at a respectful distance around the machine, the test started. At first the whirr of the 75-horsepower motor as it drove the load screws through reduction gears was all that could be heard, then as the load increased an officer gave the readings indicated by the weighing arm. This gradually mounted—600,000 pounds, 700,000 pounds and so on until the specified strength of 1,200,000 pounds had been successfully reached and passed. At 1,300,000 pounds the snapping of individual wires could be heard. This snapping increased in frequency until at about 1,400,000 pounds it was like a machine gun in operation. Soon after this the cable itself broke with a cannon-like report and a recoil that shook the building.

The Hudson River bridge for which these tests are being made will have a main span of 3500 feet or twice the span of any existing suspension bridge. It will have four main suspension cables of 36 inches in diameter each. The total strength of the four main cables will be 350,000 tons. The large testing machine at the Roebling plant will now be in daily operation on tests of wires and cables for the Hudson River bridge throughout the summer and fall.




*The use of three screws in this testing machine insures stability of the pulling heads and a uniform proportionate loading of each screw*

# New Steel Merger Is Forecast by Cleveland-Cliffs Alliance

DETAILS of the plan for the pooling of interests of the Cleveland Cliffs Iron Co., with the steel-financial group headed by C. S. Eaton, Cleveland, further strengthen the view that the move is a forerunner of the formation of a large iron and steel company combination. The plan, as revealed in a letter to stockholders of the Cleveland Cliffs Iron Co., from W. G. Mather, president, is designed to enable the company to participate in further consolidations of steel companies.

Under the plan the common stock of the company, of which there is 400,000 shares outstanding, is to be pooled with stocks of steel companies held by Mr. Eaton and his associates, having a market value of $40,000,000. This will be done through the formation of a holding company called the Cliffs Corp., which will receive and hold common stock of the Cleveland Cliffs Iron Co., and the block of steel stocks deposited by Mr. Eaton.

One-half of the capital stock of the Cliffs Corp. will pass into control of Mr. Eaton, while common stockholders of the Cleveland-Cliffs Iron Co. will receive the other half. The present management of the iron ore company will continue without change, it is announced.

In carrying out the deal stockholders of the Cleveland-Cliffs Iron Co., will first receive a dividend of preferred stock at the rate of 1¼ shares for each share of common stock now held. In addition, they will receive a cash dividend of $5 a share. In order to pay the preferred stock dividend the company will create 500,000 shares, with no par value, carrying a $5 cumulative annual dividend, subject to call at $102.50 a share and accrued dividends. This stock will also be entitled to a sinking fund amounting to $500,000 for the first two years, $750,000 for the second two years and thereafter, $1,000,000 annually.

The 50 per cent of the shares of the Cliffs Corp. to be issued in exchange for the common stock of the Cleveland-Cliffs Iron Co. will be kept in one block. In order to do this the plan provides for the creation of a voting trust to hold the stock. If the plan becomes effective Cleveland-Cliffs Iron Co. shareholders will receive for each share of present stock a cash dividend of $5; one and one-fourth shares of the new preferred 5 per cent stock of the Cleveland-Cliffs Iron Co., and a voting trust certificate representing one share of stock of the Cliffs Corp.

As the Cleveland-Cliffs Iron Co. has 400,000 shares of common stock outstanding it will receive 400,000 shares of the holding company capital and Eaton a like number of shares. The stock of the Cleveland-Cliffs company has been selling for around $250 a share, at which price its shares represent an aggregate market value of $100,000,000.

The plan will become effective when adopted by the holders of at least 85 per cent of the common stock of the Cleveland-Cliffs Iron Co. In carrying out the plan a committee will act in behalf of the stockholders of the Cleveland-Cliffs Iron Co. This committee consists of the following: W. G. Mather, Samuel Mather, Truman H. Newberry, E. B. Greene, G. G. Wade, S. L. Mather, H. A. Raymond, C. G. Heer, and William P. Belden. Stockholders who approve the plan are to deposit their stock in the Union Trust Co., Cleveland, before June 1.

In his letter President Mather says it is expected that the Cleveland Corp. will declare dividends from time to time from its net income derived from the ownership of the common stock of the Cleveland-Cliffs Iron Co. and the block of steel stocks deposited by Eaton. These dividends will be in addition to the revenue received by Cleveland-Cliffs Iron stockholders from the preferred stock. This will be at the rate of $6.25 a share in view of exchange being 1¼ of preferred for each share of common.

"In view of the probability of further mergers among the larger steel companies depending for their ore supplies upon the mines of the Lake Superior country, in which event the market for our products might suffer restriction, it has seemed to your directors desirable that our company place itself in a position to 'participate in such movements,'" says President Mather's letter to stockholders.

"An alliance, therefore, has been arranged with a strong financial group headed by Cyrus S. Eaton which owns large blocks of stock in a number of the stronger steel companies, which alliance will, in case we remain independent, help to enlarge our markets for iron ore, or place ourselves in a stronger position in connection with the whole industry.

"It is felt by your officers that such an arrangement is in line with the policy of our company in furthering its relation with ore consuming companies, thus enabling us to enlarge our market and increase the profits of the company.

"I am authorized to say that all of the directors and principal stockholders of the company fully approve this plan, and join me in recommending its adoption and in requesting the prompt deposit of your stock."

Resources of the Cleveland-Cliffs Iron Co. as of Dec. 31, 1928, totaled $97,156,777, including $29,712,216 reserves. The company is the oldest company mining Lake Superior ore, having been organized nearly 80 years ago, as the Cleveland Iron Mining Co. The company operates about 29 mines and a fleet of 24 vessels.

## Taylor Society Cancels Spring Meeting

Due to troubled labor conditions in the textile field, with the accompanying demands this situation has made upon members of the Taylor society affiliated with that industry, the spring meeting of the society, scheduled to be held in Charlotte, N. C., May 1-3, was called off. The annual meeting of the organization will be conducted in New York, Dec. 4-6, according to H. S. Person, managing director, 29 West thirty-ninth street, New York.

---

The process of cold extrusion of seamless copper tubing has been developed at the plant of the Winchester Repeating Arms Co., New Haven, Conn., and is now being carried on as a production process. The press which extrudes these tubes employes a pressure of 50,000 pounds per square inch. The tubes are used for automobile and airplane radiators and for heating appliances.

# Engineers Study Plant Operation and Production Problems

## *Materials Handling and Management Divisions of American Society of Mechanical Engineers Discuss Methods to Increase Output and Cut Costs*

INDUSTRY in virtually all its major phases was represented at the national production and plant management meeting held under the auspices of the materials handling and management divisions of the American Society of Mechanical Engineers at the Book-Cadillac hotel, Detroit, May 1-3. Members and guests attending numbered 400 and sessions drew capacity audiences. Interest and enthusiasm in the papers and discussions embracing materials handling equipment and methods, production control, plant operation and shop practice characterized the sessions.

Detroit as the center of the automotive industry offered an ideal background for the meeting. Practically every type of conveyor system may be found in the various plants there and mass production is demonstrated no better elsewhere. Engineers, production managers, plant superintendents and manufacturing executives saw a cross section of an industry which has progressed rapidly in comparatively few years and learned how these ideas may be applied to other industries.

Highlights of the program were the manufacturers' dinner Wednesday evening and the banquet Thursday evening. The three-day period was interspersed with morning visits to automotive and other manufacturing plants.

# Mechanical Equipment Should Conserve Labor

IN THE introductory address of the conference, James Lynah, director of staff, works managers committee, General Motors Corp., Detroit, discussed, "Management Applied to Materials Handling," and struck the keynote. Mr. Lynah began with an outline of the organization of four co-ordinated committees in the General Motors Corp. The works managers committee, of which he is director, undertakes to co-ordinate production engineering problems, power plant work, factory layout, etc.

A staff of specialists is maintained and these men are experienced in the various lines of production engineering work, wage incentives, power and maintenance problems, working in a consulting capacity with the various divisions. Augmenting these groups, subcommittees representative of the personnel of the important plants, are formed.

Completing the preface of his address, he launched upon the discussion of materials handling with respect to its influence on the men. He believes this factor of plant operation should be considered from a viewpoint of supplying mechanical equipment that will save physical effort as much as possible. "We all know," Mr. Lynah continued, "that human efficiency varies inversely with fatigue, and if you are going to keep a man working to the highest point of efficiency, you want to conserve his energy and the way to do it is to lengthen and lighten his physical burden or reduce the physical effort required."

He did not dwell long upon conveyors and conveying systems, explaining that these could be seen on inspection trips to the different plants, but turned to wage incentives. His remarks in part were as follows:

"We have found in a great many cases that a wage incentive plan such as the group bonus system, can be applied well to materials handling from the cars down through the storehouses. It is a comparatively easy matter to work out standard times for handling any class of productive materials that comes in large volume, and we do that.

"Installations of conveyors, by having your operations in proper sequence, and establishing a wage incentive system, the inventory float in a factory can be reduced to such an extent that it is amazing. The banks of material between operations to a great extent can be eliminated."

### Papers Cover Forge and Foundry

Continuing the initial session, Hugh Dean, manager Chevrolet forge plant, Detroit, read a paper on the subject, "The Forge Shop." It is presented on page 1253 of this issue of IRON TRADE REVIEW. "Material Handling in the Foundry," a paper by L. W. Pardee, plant engineer, Wilson Foundry & Machine Co., Pontiac, Mich., concluded the afternoon period. The paper opened with a brief description of the plant in question, enumerating the divers problems that confronted the institution as production made greater demands and increased tonnage capacity became necessary. In describing the first equipment installed after the necessity of a change was realized, Mr. Pardee depicted the apron conveyor which was used for the snagging of the castings in removing the sprues and large cores.

At a manufacturers' dinner on Wednesday evening, Harold V. Coes, Ford, Bacon & Davis Inc., New York, said that manufacturers will have to sell not only materials handling equipment but they also will have to sell service. Jervis B. Webb, J. B. Webb Co., Detroit, said equipment should be sold more on a basis of savings to industry than on price per pound of steel. Discussion brought out that a formula for labor saving equipment has been introduced and will be available soon. Further development of the formula was suggested. It must have universal ap-

plication and supply facts and figures. Universities now are teaching materials handling but professors are struggling with much useless data. Expressions from members of the society revealed that the organization is eager to co-operate.

Opening the Wednesday evening session John M. Carmody, editor, *Factory and Industrial Management*, Chicago, gave a general survey of business. He spoke of the progress in industry and showed the relation of one phase to another. "One of the most important functions of engineering," he said, "is the transferring of an idea from one job to another." He warned his audience of industrial men to keep their minds open and follow science and research closely. "Engineers should give up the opinion that ideas cannot be transmitted from one industry to another," he said.

At the conclusion of Mr. Carmody's talk, R. L. Lockwood, department of commerce, Washington, explained that the department is able to disseminate a wealth of information invaluable to engineers. He believes that material handling has never come into its own and has a tremendous future. Inquiries reach the department from foreign sources seeking information regarding American methods of materials handling, Mr. Lockwood said. More material in addition to that already distributed, is being prepared. The department welcomes inquiries and has a wide scope, he informed his listeners.

### Sheet Metal Is Topic

"The Sheet Metal Shop," was the subject of the paper read by George E. Hagemann, *American Machinist*, New York, in which it was pointed out that the general objective of those in charge of materials handling in plants is to use the railroad as a storeroom. The principal economy is floor space and increased output runs hand in hand with good management control. If the layout is not satisfactory, work will not flow smoothly, money is lost and progress is hindered.

The general scheme is to have equipment producing the work near the railroad unloading platform. All companies are rapidly abandoning hand unloading one sheet at a time from cars, he said, and in view of the danger in performing this task, mechanical devices are being brought into play. In the discussion that followed it was stated that sections of automobile bodies formerly made up of three or four pieces, now are formed from one sheet. This tends toward larger presses in body shops.

# Discuss Length and Efficiency of Conveyors

THURSDAY afternoon's session started with a paper on "Body Building," by George E. Hagemann. The discourse covered wood and steel construction and in the latter type riveting and welding practices formed part of the discussion. Mr. Hagemann said that highly organized proceedings are carried out in this kind of factory and it is not only necessary to have material on time but stocks also must be held to a minimum.

### Shows Automotive Operations

William E. Pfeil, Studebaker Corp., South Bend, Ind., gave an illustrated talk on "Cleaning and Painting Operations." He covered the procedure which fenders, hoods, instrument boards and other appending body parts, undergo. Discussion centered on conveyors in reference to length versus efficiency and the power required to operate them. One drive set up as an example is 2500 feet long and is operated by a single motor. It moves at a rate of 40 feet per minute. Jervis B. Webb declared that installations of drives up to 3000 feet long with one application of torque have been made. Drives two miles long without turns or dips are possible, he added. Vertical dips add more stress than horizontal turns in conveyors, Mr. Webb explained. N. H. Preble, Mechanical Handling Systems, Detroit, advised that lubrication is an important factor in maintaining the efficiency of conveyors in foundries and similar shops where there is chance of foreign matter falling into the mechanism. Several reels of films comprised the remainder of the afternoon program.

In a paper on general assembly read on the last day, S. L. Hudd, assistant chief of standards, Oakland Motors Corp., Detroit, said: "Most modern plants have long since discarded the older method of feeding the finished parts into a stockroom and from there to the assembly lines. Present practice is to have the finished parts feed directly from the machine line or subassembly line to the point where it is assembled to the large unit, with as small a float as is consistent with the nature of the part and the method of fabrication. He continued:

"In our plant we have been able to reduce our inventory to a fairly satisfactory figure by storing material in bays along the assembly lines, as near as possible to the point where it is to be used. This eliminates the necessity of double handling as well as the necessity for keeping a stock record in the factory. It is our practice to operate with a three and six-day bank of material.

"Conveyors may be divided into two major classes; those whose only function is to move material from one place to another and those which move work progressively from one work station to another. The first class is in all cases independent of human effort. The second class may be either in constant or intermittent motion or the work may be manually moved by the workmen. The constantly moving conveyor is used more often on progressive assembly work where its desirability as a pace setter can not be denied. On certain kinds of inspection work and such work as body stripping, it may be desirable to have work pushed along by the workmen."

"Material Routing to the Car Assembly Line," was the subject of a paper by L. A. Churgay Sr. In the plants built before the period of intensive production the mechanical equipment consisted, with few exceptions, of two main conveyors moving the chassis and body in process, all other material being delivered by means of gasoline, electric or hand trucks. It was quickly recognized that specially designed conveyors should be installed for the interdepartmental delivery of motors, wheels, fenders, hoods and other parts.

### Co-ordinating Subassemblies

Next, subassembly operations were located adjacent to the final assembly line where such arrangement seemed practical. These subassemblies are scheduled to operate in accordance with the final assembly line requirements to prevent the accumulation of excessive stock. It is imperative that all material placed on the assembly line must be within easy reach of the operators. Some items, therefore, must be delivered in limited quantities several times daily.

"Principles of Material Control" were discussed by Howard H. Flagg, member of advisory staff, General Motors Corp., Detroit. He spoke as follows:

"Many raw materials have to be purchased three months ahead of time, so monthly forecasts usually include the probable requirements that far in advance. The data for these estimates include figures from the field organization of the sales department and the quantities sold in corresponding months of former years. Every item of information at the command of the organization is utilized in formulating the forecast.

"In addition to the quantities needed

to meet the forecast, there are service requirements, replacement for scrap, and other extraneous items, all of which must be listed and combined.

"The importance of standardization now is so well accepted that little need be said on the subject. It is well to remember, however, that standardization should start in the engineering department. When suggestions along this line originate in the material control, the factory or the purchase department, they involve engineering changes. The principles to be kept in mind are: Utilize standard shapes, sizes and limits for bulk stock, use smallest possible variety of standard purchase parts, make fabricated parts used in various models and sizes of product interchangeable whenever practicable."

"Application of Automotive Methods to the Electrical Industry" was given by E. L. Spray, chemical engineer, Mansfield Works, Westinghouse Electric & Mfg. Co. The introduction of conveyor methods rendered obsolete our old individual incentive plan of wage payment and we were forced to replace it with a group bonus plan. This system was carefully installed and has been a large factor in the success of our conveyor plan.

Another type of conveyor in which the definite time element is all-important, is the process conveyor, used for painting, baking, drying, vitreous enameling, heat treating, etc. The human element almost entirely is eliminated and the same results are produced day after day.

## Tentative Heat Treating Practice Suggested

(*Concluded from Page* 1263)

upon time as well as temperature. They are only indicative of the temperature of the surface and do not indicate that the steel has been heated uniformly throughout. Tempering by color is not conducive to uniformity. When necessity requires that tools be tempered by color they should be heated by color desired, after which further tempering is usually stopped by quenching or withdrawing from the heating medium.

### Normalizing

*Cementite Segregates*—Normalizing implies heating steel far enough above the critical range to carry all cementite into solution and when this is done, it is followed by air cooling; cementite segregates may thus be broken up and a more uniform distribution obtained.

*Rate of Heating*—Heating tools for normalizing should be done in a manner similar to that of hardening. Correct soaking time is proportional to the size of the piece. Prolonged soaking will coarsen the grain, rendering subsequent refinement difficult.

*Rate of Cooling*—The material is cooled from the normalizing temperatures in still air.

# Film Illustrates Induction Furnace Operation

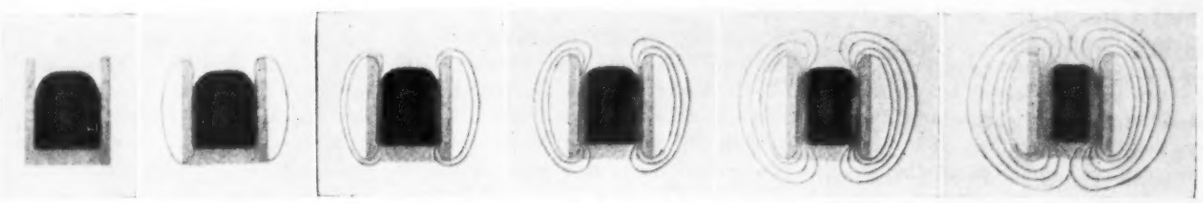


*Fig. 1—Six exposures from a motion picture film illustrating how the lines of force build up and collapse in a high-frequency electric induction furnace*

OPERATION of the high-frequency induction furnace is entirely different from that of arc or other types of electric furnaces. Thus, to tell the story of this furnace, the Ajax Electrothermic Corp., Trenton, N. J., has prepared a motion picture film showing actual furnaces in operation and illustrating the way in which electrical energy acts on the charge in the furnace.

Those familiar with the use of the furnace will be interested in the novel method of showing Faraday's "lines of force" by means of ink lines on a cross-sectional view of the furnace. In Fig. 1 are six exposures from the film showing the way these lines are represented. When the film is projected on the screen, a good idea is given as to how the lines actually build up and collapse.

Fig. 2 shows the designations of essential parts of the furnace; Fig. 3 shows arrows indicating resultant pressure caused by repulsion of the charge from the coil; and Fig. 4 shows the method by which flow lines in the molten metal are indicated. The position of the short lines changes as the film progresses, indicating four swirls of molten metal.

Also included in the film are photographs of furnaces in operation in the plants of the Ajax Electrothermic Corp., Trenton, N. J., and Edgar Allen Steel Co., Sheffield, England. For comparison purposes, melting in crucibles is illustrated. The 150-kilowatt 600-pound furnaces used by the Heppenstall Forge & Knife Co., Pittsburgh, are shown with separate photographs of the electrical equipment. Two 1000-pound furnaces in the plant of the Babcock & Wilcox Tube Co., Beaver Falls, Pa., also are represented.

The application of the coreless induction furnace to the heating of metals for forging is shown, and it is striking to see white hot steel coming from a cold furnace. Concluding the film are views describing the method of putting linings in 500-pound melting furnaces, these views being obtained by making flashes of the essential operations.

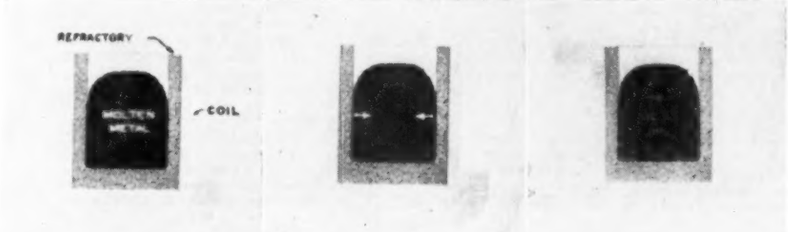
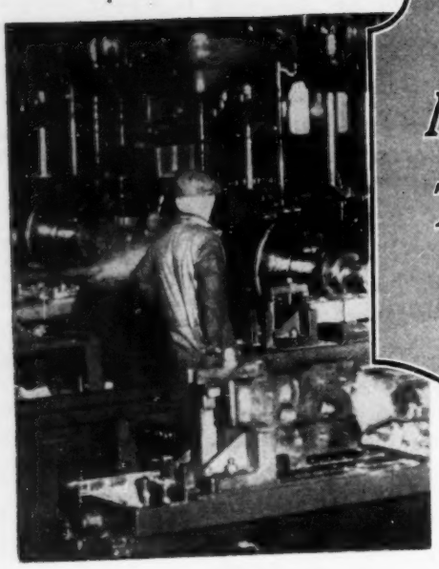



*Fig. 2 (Right)—Cross section of high-frequency induction furnace. Fig. 3 (Center)—Arrows indicate pressure on molten charge, resulting in stirring action*

*Fig. 4 (Left)—succession of lines showing stirring action. As film progresses position of short lines changes to indicate four swirls of molten metal*



# New Machine Tools and Shop Equipment

"Without tools man is nothing, with tools he is all."—Carlyle

## Fan in Heating Chamber of Drawing Oven

No. 103

A fan to agitate the air around the work has been incorporated in the design of a new electric drawing oven manufactured by the General Electric Co., Schenectady, N. Y. Any temperature up to 750 degrees Fahr. can be obtained in the oven, thus covering the full range necessary for drawing and bluing carbon steel. Only 0.9 kilowatts is required to maintain a temperature of 500 degrees Fahr. About 25 minutes are needed to bring the oven up to a temperature of 500 degrees Fahr., but by installing a time switch, it can be brought up automatically to temperature before workmen arrive, and can be cut off at closing time.

The fan is located in the heating chamber and is driven by a vertical motor mounted on top of the oven. As a result, greatly increased production can be obtained because less time is needed to heat a given charge.

Double-wall construction is used throughout, with the intervening 4-inch space filled with heat-insulating material. The steel sheets which form the walls are electrically welded together and reinforced by angles welded along the corners and extended downward to form the legs, as shown in the accompanying illustration. The heating chamber is closed by a well-insulated and closely-fitted door. A strip steel grate for supporting the work forms the hearth, which is level with the inner edge of the door opening.

One sheath-wire heating unit is located at the top of the heating chamber, and a second is placed just under the hearth. Both windings are distributed to obtain uniform heating over the entire hearth. The unit terminals are brought through the back wall to a connection box and are wired to the enclosed control panel.

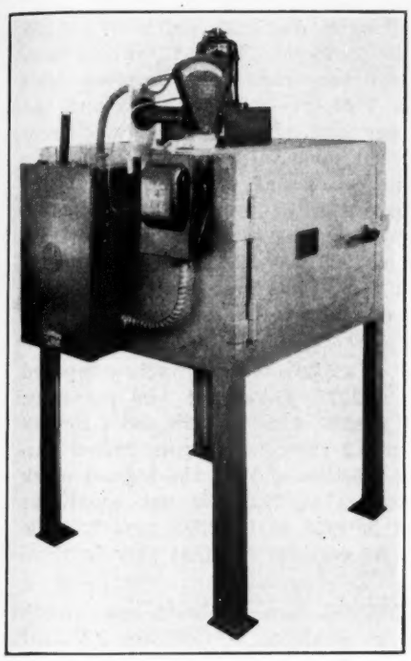
Temperature control is fully automatic, consisting of an enclosed contactor panel and a controller. The controller can be set at any point up to 750 degrees Fahr. and will hold the oven at a uniform temperature

# Iron Trade Review's Calendar of New Equipment

| Item | Comment | Builder | No. | Date Described | Page |
|---|---|---|---|---|---|
| Gear shaver | For finishing teeth of rough cut gears to true involutes | Pratt & Whitney Co. | 78 | April 11 | 1000 |
| Double-pawl clutch | Incorporated in design of new line of presses | American Can Co. | 79 | April 11 | 1000 |
| Air drill | Rotor governor controls speed and air consumption | Rotor Air Tool Co. | 80 | April 11 | 1001 |
| Polishing machine | Also buffing; double spindles entirely independent | Excelsior Tool & Machine Co. | 81 | April 11 | 1001 |
| Buckets | Open and closed types for materials handling | Reichmann-Becker Polyp Co. | 82 | April 11 | 1001 |
| Coal loader | Electric operation; continuous loading action | Covington Machine Co. | 83 | April 11 | 1001 |
| Pump | Hydraulic; working pressures up to 6500 pounds | John Robertson Co. | 84 | April 11 | 1001 |
| Truck | For carting loose materials about shop | Pittsburgh Producers Supply Co. | 85 | April 18 | 1067 |
| Gear generator | Generates large pitch helical, spur and herringbone gears | Farrel-Birmingham Co. Inc. | 86 | April 18 | 1067 |
| Polishing machine | Grinds, polishes and buffs; four grinding wheels | Excelsior Tool & Machine Co. | 87 | April 18 | 1068 |
| Punches and retainers | Complete line and interchangeable; high safety factor | King Works | 88 | April 18 | 1068 |
| Strip heater | Electric; 24 inches long; for 110 or 220 volts supply | General Electric Co. | 89 | April 18 | 1068 |
| Pouring device | Trolley runs on I-beam; ladle operated electrically | Modern Pouring Device Co. | 90 | April 18 | 1068 |
| Lever punch | Capacity of 5/16-inch hole in 5/16-inch iron | Excelsior Tool & Machine Co. | 91 | April 18 | 1069 |
| Milling machines | Standard universal and standard plain units | Brown & Sharpe Mfg. Co. | 92 | April 25 | 1132 |
| Tool holder | Floating type; friction is minimized | Apex Machine Co. | 93 | April 25 | 1133 |
| Abrasive tools | Carborundum reamers and files | Carborundum Co. | 94 | April 25 | 1133 |
| Milling head | Combination side and end type | Giddings & Lewis Machine Tool Co. | 95 | April 25 | 1133 |
| Switch | Direct-current cam switch for controlling auxiliaries | General Electric Co. | 96 | April 25 | 1133 |
| Milling machine | Double-spindle type with opposed feed | Kent-Owens Machine Co. | 97 | May 2 | 1193 |
| Cranes | Locomotive cranes with center-drive superstructures | Thew Shovel Co. | 98 | May 2 | 1193 |
| Locomotives | Industrial type; gasoline powered and gear driven | Cincinnati Car Corp. | 99 | May 2 | 1193 |
| Switch | Combines magnetic and circuit switches and fuses | General Electric Co. | 100 | May 2 | 1194 |
| Lathe | Larger model of single-spindle automatic unit | Jones & Lamson Machine Co. | 101 | May 2 | 1194 |
| Motor | Fan-cooled and totally-enclosed; uses direct current | Westinghouse Electric & Mfg. Co. | 102 | May 2 | 1194 |
| Drawing oven | 750 degree range; fan in heating chamber | General Electric Co. | 103 | May 9 | 1268 |
| Slip roll former | For forming sheets; 3-inch diameter capacity | Niagara Machine & Tool Works | 104 | May 9 | 1269 |
| Locomotive crane | Gasoline powered; 3-speed automotive gear shift | American Hoist & Derrick Co. | 105 | May 9 | 1269 |

within a margin of 5 degrees. A recorder controller may be used with the oven for obtaining a continuous temperature record.

The oven chamber is 24 inches wide, 21 inches deep and 9 inches high. The outside overall width is 40 inches, the outside overall height, 61 inches, and the outside overall length, 33½ inches. The door opening is 24 inches wide and 12 inches high. The hearth stands 31 inches above the floor. Normal rating of the oven is



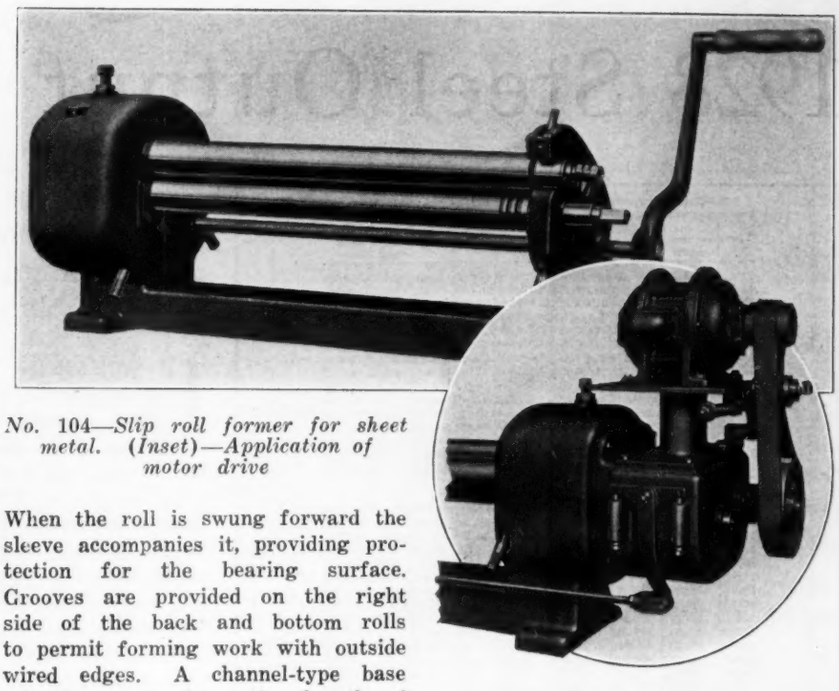
*No. 103—Electric drawing oven with fan in heating chamber*

5 kilowatts, and its capacity is 100 pounds of steel per hour to 500 degrees Fahr.

## New Slip Roll Former Is Single Geared

No. 104

Niagara Machine & Tool Works, 637-697 Northland avenue, Buffalo, has added a 3-inch diameter size to its newly designed line of slip roll formers. The formers are intended for use in the forming of sheet metal into cylindrical shapes such as gear guards, blow pipes and the like. The machine is of geared construction and is arranged with the top roll pivoted at the left end, swinging forward for the removal of finished work. Three sizes are available, 3 inches by 36 inches, 3 inches by 42 inches and 3 inches by 48 inches. All can be furnished for hand operation, pulley drive or belted motor drive. A full bearing sleeve is provided on the movable end of the front top roll.



*No. 104—Slip roll former for sheet metal. (Inset)—Application of motor drive*

When the roll is swung forward the sleeve accompanies it, providing protection for the bearing surface. Grooves are provided on the right side of the back and bottom rolls to permit forming work with outside wired edges. A channel-type base extends across the entire length of the machine. The former is single geared and all three rolls are positively driven. The gears run in a bath of oil which is said to insure complete lubrication of moving parts. Adjustment of the lower front and rear rolls is accomplished through knurled screws without the use of wrenches.

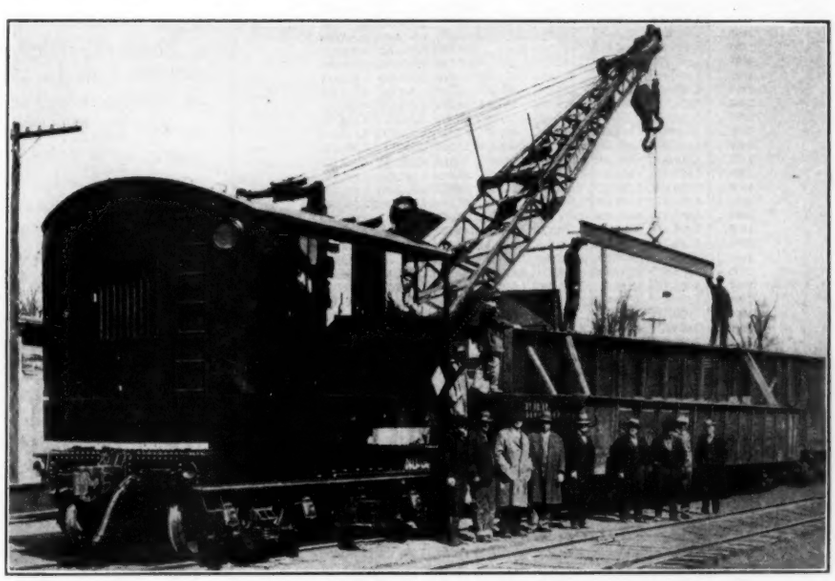
## Three-Speed Gear Shift on Locomotive Crane

No. 105

American Hoist & Derrick Co., 63 South Robert street, St. Paul, recently has placed on the market a three-speed gasoline locomotive crane. Flexibility is given to the unit by a three-speed automotive shift mechanism similar to that of the automobile; a low gear for a powerful start, intermediate gear for average crane work and traveling, and high gear for rapid traveling. Varying speeds are claimed to facilitate material handling, light loads being handled speedily while heavier loads are moved slower and with more power. Convenience, cleanliness and economy are three advantages which the manufacturer claims for the crane.

---

Surplus coal cars on April 15 totaled 124,289, a decrease of 10,437 cars within approximately a week, while surplus box cars totaled 86,664, a decrease of 2443 for the same period.



*No. 105—Three-speed gasoline locomotive crane with automotive gear shift*

# 1928 Steel Output a Record

PRODUCTION OF STEEL INGOTS AND CASTINGS BY PROCESSES.

| Years. | Open-hearth. Basic. | Open-hearth. Acid. | Open-hearth. Total. | Bessemer. | Crucible. | Electric. | Miscellaneous. | Total. Gross tons. |
|---|---|---|---|---|---|---|---|---|
| 1914 | 16,371,129 | 903,555 | 17,174,684 | 6,220,846 | 89,869 | 24,009 | 3,622 | 23,513,030 |
| 1915 | 22,308,725 | 1,370,377 | 23,679,102 | 8,287,213 | 113,782 | 69,412 | 1,527 | 32,151,036 |
| 1916 | 29,616,658 | 1,798,769 | 31,415,427 | 11,059,039 | 129,692 | 168,918 | 604 | 42,773,680 |
| 1917 | 32,087,507 | 2,061,386 | 34,148,893 | 10,479,960 | 126,716 | 304,543 | 495 | 45,060,607 |
| 1918 | 32,476,571 | 1,962,820 | 34,459,391 | 9,376,236 | 115,112 | 511,364 | 329 | 44,462,432 |
| 1919 | 25,719,312 | 1,229,382 | 26,948,694 | 7,271,562 | 63,572 | 384,452 | 2,952 | 34,671,232 |
| 1920 | 31,375,723 | 1,296,172 | 32,671,895 | 8,883,087 | 72,265 | 502,152 | 3,535 | 42,132,934 |
| 1921 | 15,082,564 | 507,238 | 15,589,802 | 4,015,938 | 7,613 | 169,499 | 945 | 19,783,797 |
| 1922 | 28,387,171 | 921,812 | 29,308,983 | 5,919,296 | 28,606 | 346,039 | .... | 35,602,926 |
| 1923 | 34,665,021 | 1,234,636 | 35,899,657 | 8,484,088 | 44,079 | 515,872 | .... | 44,943,696 |
| 1924 | 30,719,523 | 857,827 | 31,577,350 | 5,899,590 | 22,473 | 432,526 | .... | 37,931,939 |
| 1925 | 37,087,342 | 947,146 | 38,034,488 | 6,723,962 | 19,562 | 615,512 | .... | 45,393,524 |
| 1926 | 39,653,315 | 1,038,664 | 40,691,979 | 6,934,568 | 15,493 | 651,723 | .... | 48,293,763 |
| 1927 | 37,144,268 | 924,067 | 38,068,335 | 6,191,727 | 9,036 | 666,087 | .... | 44,935,185 |
| 1928 | 43,200,483 | 913,473 | 44,113,956 | 6,620,195 | 7,769 | 802,260 | .... | 51,544,180 |

PRODUCTION OF STEEL CASTINGS.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1914 | 334,144 | 270,173 | 604,317 | 65,882 | 11,186 | 8,551 | 3,310 | 693,246 |
| 1915 | 333,103 | 402,229 | 735,332 | 92,476 | 14,756 | 23,064 | 1,196 | 866,824 |
| 1916 | 605,512 | 570,937 | 1,176,449 | 142,791 | 9,351 | 42,870 | 302 | 1,371,763 |
| 1917 | 588,568 | 654,588 | 1,243,156 | 159,272 | 3,834 | 64,911 | 234 | 1,441,407 |
| 1918 | 505,880 | 634,950 | 1,140,830 | 160,844 | 1,330 | 108,296 | 110 | 1,411,410 |
| 1919 | 313,965 | 448,555 | 762,520 | 98,819 | 1,009 | 111,510 | 2,579 | 976,437 |
| 1920 | 449,330 | 537,070 | 986,400 | 104,980 | 1,729 | 155,196 | 3,237 | 1,251,542 |
| 1921 | 217,957 | 216,488 | 434,445 | 38,809 | 736 | 85,095 | 628 | 559,713 |
| 1922 | 425,981 | 404,767 | 830,748 | 47,733 | 1,045 | 154,982 | .... | 1,034,508 |
| 1923 | 571,310 | 581,299 | 1,152,609 | 67,512 | 1,952 | 235,958 | .... | 1,458,031 |
| 1924 | 456,518 | 402,901 | 859,419 | 53,437 | 1,377 | 206,549 | .... | 1,120,782 |
| 1925 | 455,282 | 462,303 | 917,585 | 53,834 | 1,833 | 279,534 | .... | 1,252,786 |
| 1926 | 480,627 | 505,379 | 986,006 | 43,066 | 2,041 | 326,445 | .... | 1,357,558 |
| 1927 | 393,881 | 430,414 | 824,295 | 38,024 | 1,340 | 294,809 | .... | 1,158,468 |
| 1928 | 381,926 | 458,590 | 840,516 | 28,450 | 1,253 | 348,568 | .... | 1,218,787 |

PRODUCTION OF ALLOY STEEL INGOTS AND CASTINGS.

| Years. | Ingots. | Castings. | Total. | Years. | Ingots. | Castings. | Total. |
|---|---|---|---|---|---|---|---|
| 1915 | 923,251 | 97,896 | 1,021,147 | 1922 | 1,614,392 | 59,104 | 1,673,496 |
| 1916 | 1,306,157 | 56,458 | 1,362,615 | 1923 | 2,014,269 | 92,220 | 2,106,489 |
| 1917 | 1,576,806 | 67,529 | 1,644,335 | 1924 | 1,940,461 | 85,948 | 2,026,409 |
| 1918 | 1,721,367 | 66,485 | 1,787,852 | 1925 | 2,320,390 | 112,583 | 2,432,973 |
| 1919 | 1,435,816 | 45,372 | 1,481,188 | 1926 | 2,317,313 | 146,101 | 2,463,414 |
| 1920 | 1,591,939 | 68,353 | 1,660,292 | 1927 | *2,385,904 | 145,844 | *2,531,748 |
| 1921 | 769,293 | 40,255 | 809,548 | 1928 | 3,045,225 | 169,684 | 3,214,909 |

*Revised.

PRODUCTION OF ALLOY STEEL INGOTS AND CASTINGS BY PROCESSES, GROSS TONS, 1927–1928.

| Processes. | 1928—Gross tons. Ingots. | Castings. | Total. | Total, 1927. |
|---|---|---|---|---|
| Open-hearth steel—basic | 2,578,607 | 31,215 | 2,609,822 | *2,008,075 |
| Open-hearth steel—acid | 51,096 | 52,587 | 103,683 | 102,601 |
| Bessemer steel | 59,582 | 6,436 | 66,018 | 74,094 |
| Crucible steel | 2,278 | 12 | 2,290 | 3,461 |
| Electric steel | 353,662 | 79,434 | 433,096 | 343,517 |
| Total Gross tons | 3,045,225 | 169,684 | 3,214,909 | *2,531,748 |

*Revised.

TOTAL PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND STEEL, GROSS TONS, 1887–1928.*

| Years. | Iron and steel rails. | Plates and sheets. | Wire rods. | Structural shapes. | Nail plate. | All other finished rolled. | Total Gross tons. |
|---|---|---|---|---|---|---|---|
| 1887 | 2,139,640 | 603,355 | ..... | ..... | 308,432 | 2,184,279 | 5,235,706 |
| 1888 | 1,403,700 | 609,837 | 279,789 | ..... | 289,891 | 2,034,162 | 4,617,349 |
| 1889 | 1,522,204 | 716,496 | 363,851 | ..... | 259,409 | 2,374,968 | 5,236,928 |
| 1890 | 1,885,307 | 809,981 | 457,099 | ..... | 251,828 | 2,618,660 | 6,022,875 |
| 1891 | 1,307,176 | 678,927 | 536,607 | ..... | 223,312 | 2,644,941 | 5,390,963 |
| 1892 | 1,551,844 | 751,460 | 627,829 | 453,957 | 201,242 | 2,579,482 | 6,165,814 |
| 1893 | 1,136,458 | 674,345 | 537,272 | 387,307 | 136,113 | 2,104,190 | 4,975,685 |
| 1894 | 1,021,772 | 682,900 | 673,402 | 360,305 | 108,262 | 1,795,570 | 4,642,211 |
| 1895 | 1,306,135 | 991,459 | 791,130 | 517,920 | 95,085 | 2,487,845 | 6,189,574 |
| 1896 | 1,122,010 | 965,776 | 623,986 | 495,571 | 72,137 | 2,236,361 | 5,515,841 |
| 1897 | 1,647,892 | 1,207,286 | 970,736 | 583,790 | 94,054 | 2,497,970 | 7,001,728 |
| 1898 | 1,981,341 | 1,448,301 | 1,071,883 | 702,197 | 70,158 | 3,239,760 | 8,513,370 |
| 1899 | 2,272,700 | 1,903,505 | 1,036,398 | 850,376 | 85,015 | 4,146,425 | 10,294,419 |
| 1900 | 2,385,682 | 1,794,528 | 846,291 | 815,161 | 70,245 | 3,575,536 | 9,487,443 |
| 1901 | 2,874,639 | 2,254,425 | 1,365,934 | 1,013,150 | 68,850 | 4,772,329 | 12,349,327 |
| 1902 | 2,947,933 | 2,665,409 | 1,574,293 | 1,300,326 | 72,936 | 5,383,219 | 13,944,116 |
| 1903 | 2,992,477 | 2,599,665 | 1,503,455 | 1,095,813 | 64,102 | 4,952,185 | 13,297,697 |
| 1904 | 2,284,711 | 2,421,398 | 1,699,028 | 949,146 | 61,601 | 4,597,497 | 12,013,381 |
| 1905 | 3,375,929 | 3,532,230 | 1,808,688 | 1,060,519 | 64,542 | 6,398,107 | 16,840,015 |
| 1906 | 3,977,887 | 4,182,156 | 1,871,614 | 2,118,772 | 54,211 | 7,383,828 | 19,588,468 |
| 1907 | 3,633,654 | 4,248,832 | 2,017,583 | 1,940,352 | 52,027 | 7,972,374 | 19,864,822 |
| 1908 | 1,921,015 | 2,649,693 | 1,816,949 | 1,083,181 | 45,747 | 4,311,605 | 11,828,193 |
| 1909 | 3,023,845 | 4,234,346 | 2,335,685 | 2,275,562 | 63,746 | 7,711,506 | 19,644,690 |
| 1910 | 3,636,031 | 4,955,484 | 2,341,830 | 2,266,890 | 45,294 | 8,475,750 | 21,621,279 |
| 1911 | 2,822,790 | 4,488,049 | 2,450,453 | 1,912,367 | 48,522 | 7,316,990 | 19,039,171 |
| 1912 | 3,327,915 | 5,875,080 | 2,653,553 | 2,846,487 | 45,331 | 9,908,475 | 24,656,841 |
| 1913 | 3,502,780 | 5,751,037 | 2,464,807 | 3,004,972 | 37,503 | 10,030,144 | 24,791,243 |
| 1914 | 1,945,095 | 4,719,246 | 2,431,714 | 2,031,124 | 38,573 | 7,204,444 | 18,370,196 |
| 1915 | 2,304,203 | 6,077,694 | 3,095,907 | 2,437,003 | 31,929 | 10,546,188 | 24,392,924 |
| 1916 | 2,854,518 | 7,453,980 | 3,518,746 | 3,029,964 | 30,088 | 15,493,093 | 32,380,389 |
| 1917 | 2,944,161 | 8,267,616 | 3,137,138 | 3,110,000 | 22,864 | 15,585,921 | 33,067,700 |
| 1918 | 2,540,892 | 8,799,135 | 2,562,390 | 2,849,969 | 18,310 | 14,385,058 | 31,155,754 |
| 1919 | 2,203,843 | 7,372,814 | 2,538,476 | 2,614,036 | 12,832 | 10,359,543 | 25,101,544 |
| 1920 | 2,604,116 | 9,337,680 | 3,136,907 | 3,306,748 | 20,577 | 13,941,835 | 32,347,863 |
| 1921 | 2,178,818 | 4,260,574 | 1,564,330 | 1,272,624 | 14,573 | 5,483,087 | 14,774,006 |
| 1922 | 2,171,776 | 7,968,397 | 2,654,741 | 2,718,768 | 21,969 | 10,916,353 | 26,452,004 |
| 1923 | 2,904,510 | 9,497,717 | 3,075,892 | 3,405,197 | 22,833 | 14,370,921 | 33,277,076 |
| 1924 | 2,433,332 | 8,087,883 | 2,522,545 | 3,283,708 | 22,175 | 11,736,792 | 28,086,435 |
| 1925 | 2,785,257 | 9,807,659 | 2,844,656 | 3,604,130 | 22,038 | 14,323,220 | 33,386,960 |
| 1926 | 3,217,649 | 10,529,056 | 2,722,032 | 3,911,663 | 17,337 | 15,098,158 | 35,495,892 |
| 1927 | 2,806,486 | 9,627,734 | 2,770,271 | 3,742,445 | 18,051 | 13,914,044 | 32,879,031 |
| 1928 | 2,647,493 | 11,006,050 | 3,080,816 | 4,096,143 | 16,200 | 16,816,214 | 37,662,916 |

*Prior to 1887 complete statistics of the production of all forms of finished rolled iron and steel are not available.

## Final Statistics of American Iron and Steel Institute Show Ingots and Castings Gain of 14.7 Per Cent—Finished Goods Increase 14.5 Per Cent

IN ATTAINING the highest mark in history, 1928 production of steel ingots and castings, at 51,544,180 tons, exceeded the production in 1927, which was 44,935,185 tons, by 14.7 per cent. The previous high figure was reached in 1926, at 48,293,763 tons and the 1928 total was 6.73 per cent above this mark. These figures are from the final computations of the American Iron and Steel institute. Iron and steel rolled into finished form in 1928 exceeded the total of 1927 by 14.5 per cent, almost exactly the same as ingots and castings. The rolled steel total in 1928 was 37,662,916 tons and in 1927 it was 32,879,031 tons. The gain in 1928 over the record total of 1926 was about the same as the ingot and castings gain.

Steel ingots totaled 50,325,393 tons in 1928, compared with 43,776,717 tons in 1927, a gain of 14.9 per cent, and castings totaled 1,218,787 tons in 1928 and 1,158,468 tons in 1927, a gain of 5.2 per cent. Ingots gained materially over the 46,936,205 tons of 1926, the highest mark to that time, but castings in 1928 did not equal the 1,357,558 tons attained in 1926 or 1,252,786 tons in 1925. The record for 1928 puts castings for that year in third place.

Included in the 43,200,483 tons of basic open-hearth steel ingots and castings produced in 1928 are 2,232,197 tons of duplex steel ingots and castings, which were made from metal partly purified in basic open-hearth steel furnaces, against 2,184,674 tons in 1927, an increase of 47,523 tons, or 2.18 per cent. But this total of duplex steel is smaller than the production in eight preceding years. Alloy steel made a new mark with 3,214,909 tons compared with 2,531,748 tons in 1927. Of this 3,045,225 tons were ingots and 169,684 were castings. Electric steel made 433,096 tons of the total.

Finished rolled iron and steel, with a total of 37,662,916 tons in 1928, was 14.5 per cent greater than the 32,879,031 tons of 1927. While the 1927 total was exceeded by four previous years, the 1928 total sets a new mark by a comfortable percentage. Of the total finished rolled production last year about 98.71 per cent was rolled from steel, compared with 98.34 per cent in 1927. In 1928 about 34.70 per cent was rolled in Pennsylvania, against 36.79 per cent in 1927, and about 22.18 per cent in Ohio, against 21.18 per cent in 1927.

Increases in production of important steel items ranged from 1.48 per cent for skelp to 28.9 per cent for merchant bars. Concrete bars increased 16.63 per cent over 1927, plates 14.3 per cent, wire rods 11.2 per cent and strip 6.4 per cent. Tin and terne plate registered a loss of 5.4 per cent. Nail plate production was 10.25 per cent under that of 1927, cast iron pipe 4.68 per cent and cut nails 1.46 per cent. Iron and steel rails decreased from 2,806,486 tons in 1927 to 2,647,493 tons in 1928, this being the lowest production of rails since 1924 and it was exceeded in 1923. Plates and sheets increased from 9,627,734 tons in 1927 to 11,006,050 in 1928.

# New Mark in Finished Forms

PRODUCTION OF MERCHANT BARS, SHOWING IRON AND STEEL MERCHANT BARS SEPARATELY, GROSS TONS, 1909–1928.

| Years. | Iron. | Steel. | Total. | Years. | Iron. | Steel. | Total. |
|---|---|---|---|---|---|---|---|
| 1909... | 952,230 | 2,311,301 | 3,263,531 | 1919... | 446,549 | 3,945,075 | 4,391,624 |
| 1910... | 1,074,163 | 2,711,568 | 3,785,731 | 1920... | 663,032 | 5,467,208 | 6,130,240 |
| 1911... | 835,625 | 2,211,737 | 3,047,362 | 1921... | 198,324 | 1,367,430 | 1,565,754 |
| 1912... | 944,790 | 2,752,324 | 3,697,114 | 1922... | 317,665 | 3,660,993 | 3,978,658 |
| 1913... | 1,026,632 | 2,930,977 | 3,957,609 | 1923... | 404,730 | 5,148,066 | 5,552,796 |
| 1914... | 563,171 | 1,960,460 | 2,523,631 | 1924... | 258,737 | 4,022,184 | 4,280,921 |
| 1915... | 657,107 | 3,474,135 | 4,131,242 | 1925... | 290,488 | 5,368,827 | 5,659,315 |
| 1916... | 993,948 | 5,236,354 | 6,230,302 | 1926... | 252,437 | 5,221,399 | 5,473,836 |
| 1917... | 983,926 | 5,226,031 | 6,209,957 | 1927... | 187,995 | 4,682,252 | 4,870,247 |
| 1918... | 846,898 | 5,395,851 | 6,242,749 | 1928... | 165,277 | 6,112,558 | 6,277,835 |

PRODUCTION OF CONCRETE BARS, SHOWING IRON AND STEEL CONCRETE BARS SEPARATELY, GROSS TONS, 1913–1928.

| Years. | Iron. | Steel. | Total. | Years. | Iron. | Steel. | Total. |
|---|---|---|---|---|---|---|---|
| 1913..... | 113 | 319,557 | 319,670 | 1921..... | 1,094 | 226,134 | 227,228 |
| 1914..... | ..... | 288,471 | 288,471 | 1922..... | 696 | 575,120 | 575,816 |
| 1915..... | ..... | 353,408 | 353,408 | 1923..... | 368 | 680,499 | 680,867 |
| 1916..... | 2,683 | 458,717 | 461,400 | 1924..... | 507 | 655,615 | 656,122 |
| 1917..... | 1,497 | 469,687 | 471,184 | 1925..... | 1,195 | 818,392 | 819,587 |
| 1918..... | 468 | 344,152 | 344,620 | 1926..... | 1,649 | 814,180 | 815,829 |
| 1919..... | 2,295 | 416,726 | 419,021 | 1927..... | 2,428 | 813,585 | 816,013 |
| 1920..... | 698 | 571,747 | 572,445 | 1928..... | 462 | 951,426 | 951,888 |

PRODUCTION OF HEAVY AND LIGHT STRUCTURAL SHAPES, GROSS TONS, 1917–1928.

| Years. | Heavy shapes. | Light shapes. | Total. | Years. | Heavy shapes. | Light shapes. | Total. |
|---|---|---|---|---|---|---|---|
| 1917.. | 2,575,810 | 534,190 | 3,110,000 | 1923.. | 2,917,446 | 487,751 | 3,405,197 |
| 1918.. | 2,438,126 | 411,843 | 2,849,969 | 1924.. | 2,805,084 | 478,624 | 3,283,708 |
| 1919.. | 2,136,424 | 477,612 | 2,614,036 | 1925.. | 3,049,817 | 554,313 | 3,604,130 |
| 1920.. | 2,741,120 | 565,628 | 3,306,748 | 1926.. | 3,330,572 | 581,091 | 3,911,663 |
| 1921.. | 1,082,727 | 189,897 | 1,272,624 | 1927.. | 3,083,211 | 659,234 | 3,742,445 |
| 1922.. | 2,337,026 | 381,742 | 2,718,768 | 1928.. | 3,408,545 | 687,598 | 4,096,143 |

PRODUCTION OF SKELP SHOWING IRON AND STEEL SKELP SEPARATELY, GROSS TONS, 1909–1928.

| Years. | Iron. | Steel. | Total. | Years. | Iron. | Steel. | Total. |
|---|---|---|---|---|---|---|---|
| 1909.... | 370,151 | 1,663,230 | 2,033,381 | 1919.... | 192,146 | 2,363,632 | 2,555,778 |
| 1910.... | 350,578 | 1,477,616 | 1,828,194 | 1920.... | 252,403 | 2,967,886 | 3,220,289 |
| 1911.... | 322,397 | 1,658,276 | 1,980,673 | 1921.... | 115,523 | 1,815,052 | 1,930,575 |
| 1912.... | 327,012 | 2,119,804 | 2,446,816 | 1922.... | 218,868 | 2,653,347 | 2,872,215 |
| 1913.... | 312,746 | 2,189,218 | 2,501,964 | 1923.... | 216,846 | 3,517,490 | 3,734,336 |
| 1914.... | 264,340 | 1,718,091 | 1,982,431 | 1924.... | 165,581 | 3,004,962 | 3,170,543 |
| 1915.... | 262,198 | 2,037,266 | 2,299,464 | 1925.... | 178,586 | 3,051,182 | 3,229,768 |
| 1916.... | 355,445 | 2,572,229 | 2,927,674 | 1926.... | 189,774 | 3,574,776 | 3,764,550 |
| 1917.... | 336,591 | 2,337,640 | 2,674,231 | 1927.... | 156,204 | 3,262,648 | 3,418,852 |
| 1918.... | 258,500 | 2,305,511 | 2,564,011 | 1928.... | 140,318 | 3,228,655 | 3,368,973 |

PRODUCTION OF SEAMLESS STEEL TUBES, GROSS TONS, 1923–1928.

| Years. | Hot finished. | Cold drawn. | *Total. | Years. | Hot finished. | Cold drawn. | *Total. |
|---|---|---|---|---|---|---|---|
| 1923..... | 202,669 | 201,114 | 403,783 | 1926.... | 620,936 | 154,393 | *775,329 |
| 1924..... | 131,758 | 129,399 | 261,157 | 1927.... | 725,970 | 138,170 | *864,140 |
| 1925..... | 403,965 | 164,225 | *568,190 | 1928.... | 906,032 | 172,895 | *1,078,927 |

* Includes 162,294 tons of seamless steel boiler tubes in 1925, 174,000 tons in 1926, 157,205 tons in 1927, and 147,742 tons in 1928. Figures for prior years are not available.

PRODUCTION OF TINPLATES AND TERNE PLATES, 1900–1928.

| Years. | Tinplates. | Terne plates. | Total pounds. |
|---|---|---|---|
| 1900 (cen. year end. May 31)..... | 707,718,239 | 141,285,783 | *850,004,495 |
| 1901 (calendar year)..... | ..... | ..... | 894,411,840 |
| 1902..... | ..... | ..... | 806,400,000 |
| 1903..... | ..... | ..... | 1,075,200,000 |
| 1904 (cen. year end. Dec. 31)..... | 867,526,985 | 158,857,866 | *1,032,940,706 |
| 1905 (calendar year)..... | ..... | ..... | 1,105,440,000 |
| 1906..... | 1,100,373,000 | 193,367,000 | 1,293,740,000 |
| 1907..... | 996,650,000 | 156,447,000 | 1,153,097,000 |
| 1908..... | 1,048,896,000 | 154,179,000 | 1,203,075,000 |
| 1909..... | 1,179,858,000 | 190,930,000 | 1,370,788,000 |
| 1910..... | 1,450,821,000 | 168,184,000 | 1,619,005,000 |
| 1911..... | 1,597,629,000 | 158,441,000 | 1,756,070,000 |
| 1912..... | 1,965,659,000 | 191,396,000 | 2,157,055,000 |
| 1913..... | 1,708,186,000 | 136,944,000 | 1,845,130,000 |
| 1914..... | 1,939,785,000 | 146,195,000 | 2,085,980,000 |
| 1915..... | 2,201,825,054 | 163,470,646 | 2,365,295,700 |
| 1916..... | 2,552,224,275 | 214,176,952 | 2,766,401,227 |
| 1917..... | 3,233,314,911 | 153,891,653 | 3,387,206,564 |
| 1918..... | 3,216,247,675 | 85,376,569 | 3,301,624,244 |
| 1919..... | 2,407,156,757 | 171,859,924 | 2,579,016,681 |
| 1920..... | 3,079,953,351 | 158,067,437 | 3,238,020,788 |
| 1921..... | 1,675,320,852 | 103,853,961 | 1,779,174,813 |
| 1922..... | 2,707,648,715 | 177,235,512 | 2,884,884,227 |
| 1923..... | 3,168,263,546 | †207,106,248 | 3,375,369,794 |
| 1924..... | 2,975,231,674 | †202,553,793 | 3,177,785,467 |
| 1925..... | 3,458,574,585 | †254,885,172 | 3,713,459,757 |
| 1926..... | 3,750,481,879 | †241,883,727 | 3,992,365,606 |
| 1927..... | 3,513,497,164 | †235,347,756 | 3,748,844,920 |
| 1928..... | 3,672,797,065 | †278,241,691 | 3,951,038,756 |

* Includes 1,000,473 pounds in 1900 and 6,555,855 pounds in 1904 of "other sheet iron and sheet steel, tin or terne plated." † Includes 203,027,669 pounds of long terne plates in 1928, 152,371,645 pounds in 1927, 152,457,892 pounds in 1926, 163,820,675 pounds in 1925, 107,986,974 pounds in 1924, and 106,764,720 pounds in 1923.

PRODUCTION OF CAST-IRON PIPE AND FITTINGS, 1923–1928.

| Years. | Gas and water.* | Soil and plumbers. | Total. Net tons. | Years. | Gas and water.* | Soil and plumbers. | Total. Net tons. |
|---|---|---|---|---|---|---|---|
| 1923.. | 1,134,059 | 432,828 | 1,566,887 | 1926.. | 1,534,278 | 469,228 | 2,003,506 |
| 1924.. | 1,365,272 | 476,078 | 1,841,350 | 1927.. | 1,488,644 | 481,638 | 1,970,282 |
| 1925.. | 1,414,252 | 510,483 | 1,924,735 | 1928.. | 1,371,327 | 500,693 | 1,872,020 |

* Includes culvert pipe.

PRODUCTION OF IRON AND STEEL GALVANIZED SHEETS AND GALVANIZED FORMED PRODUCTS, 1918–1928.

| Years. | Galvanized sheets. | Galvanized formed products.* | Total. Pounds. |
|---|---|---|---|
| 1918..... | 1,159,778,807 | 121,110,267 | 1,280,889,074 |
| 1919..... | 1,500,575,548 | 140,494,884 | 1,641,070,432 |
| 1920..... | 1,871,360,951 | 143,894,730 | 2,015,255,681 |
| 1921..... | 1,366,883,503 | 109,956,328 | 1,476,839,831 |
| 1922..... | 2,109,991,396 | 165,713,067 | 2,275,704,463 |
| 1923..... | 2,364,862,856 | 165,741,098 | 2,530,603,954 |
| 1924..... | 2,228,960,835 | 155,901,514 | 2,384,862,349 |
| 1925..... | 2,539,112,552 | 178,219,576 | 2,717,332,128 |
| 1926..... | 2,788,473,075 | 154,572,764 | 2,943,045,839 |
| 1927..... | 2,767,615,399 | 168,500,859 | 2,936,116,258 |
| 1928..... | 3,040,763,695 | 172,453,640 | 3,213,217,335 |

* Articles formed or stamped from iron or steel black plates or black sheets and galvanized after the completion of the forming or stamping process.

PRODUCTION OF PLATES AND SHEETS BY KINDS, 1927–1928.

| Kinds. | 1927—Gross tons. | | | 1928—Gross tons. | | |
|---|---|---|---|---|---|---|
| | Iron. | Steel. | Total.* | Iron. | Steel. | Total. |
| Universal plates*..... | 2,704 | 1,241,845 | 1,244,549 | 1,018 | 1,303,338 | 1,304,356 |
| Sheared plates— | | | | | | |
| Rolled on single stands. | 74 | 1,888,134 | 1,888,208 | ..... | 1,939,652 | 1,939,652 |
| Roughed and fin. on sep. stands..... | ..... | 588,053 | 588,053 | ..... | 669,620 | 669,620 |
| Black sheets rolled on sheet or job. mills..... | 4,726 | 3,974,311 | 3,979,037 | 4,942 | 4,957,468 | 4,962,410 |
| Black plates, including black plates for tinning and black plate specialties rolled on tin mills.. | ..... | 1,927,887 | 1,927,887 | ..... | 2,130,012 | 2,130,012 |
| Total..... | 7,504 | 9,620,230 | 9,627,734 | 5,960 | 11,000,090 | 11,006,050 |

* Include flats or bars over 6 inches wide.

PRODUCTION OF WROUGHT PIPE AND SEAMLESS STEEL TUBES, INCLUDING BOILER TUBES, GROSS TONS, IN 1928.

| Kinds of pipe or tubes. | Lap weld and butt weld pipe or tubes—Gross tons. | | | Seamless pipe or tubes—Gross tons. | | |
|---|---|---|---|---|---|---|
| | Iron. | Steel. | Total welded. | *Hot finished. | Cold drawn. | Total seamless. |
| Black, standard..... | 60,060 | 1,129,782 | 1,189,842 | 16,073 | 1,473 | 17,546 |
| Galvanized..... | 41,280 | 442,606 | 483,886 | 1,870 | ..... | 1,870 |
| Oil country goods..... | 15,940 | 1,092,506 | 1,108,446 | 724,127 | 1,405 | 725,532 |
| Mechanical tubes..... | ..... | ..... | ..... | 34,717 | 99,865 | 134,582 |
| O. D. & miscellaneous..... | ..... | 82,279 | 82,279 | 6,686 | 44,969 | 51,655 |
| Boiler tubes..... | 10,771 | 48,686 | 59,457 | 122,559 | 25,183 | 147,742 |
| Total..... | 128,051 | 2,795,859 | 2,923,910 | 906,032 | 172,895 | 1,078,927 |

* Does not include hot finished tubes subsequently cold drawn.

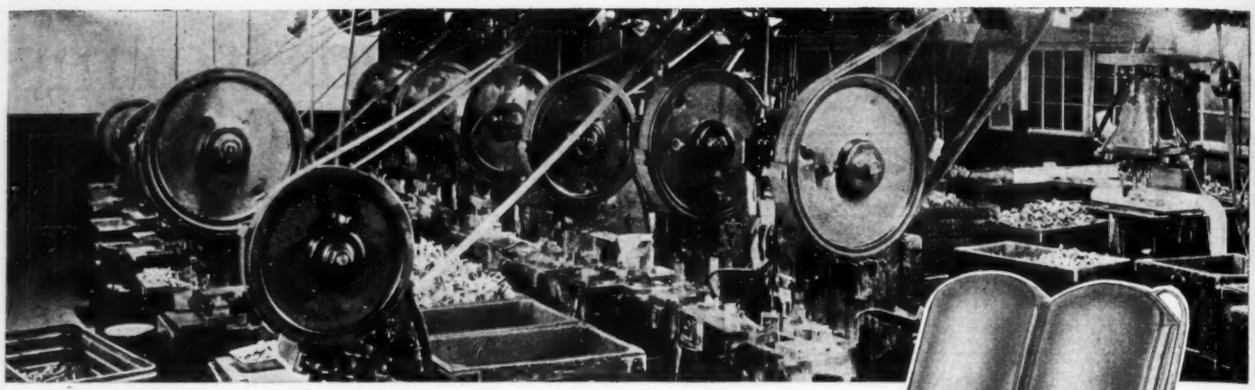
PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS, GROSS TONS.

| Products. | 1924. | 1925. | 1926. | 1927. | 1928. |
|---|---|---|---|---|---|
| Hoops..... | 179,373 | 205,049 | 189,814 | 176,300 | 176,226 |
| Bands and cotton-ties..... | 294,269 | 356,165 | 355,926 | 323,129 | 384,200 |
| Long angle splice bars, fish-plate bars, etc..... | 629,786 | 822,537 | 953,563 | 864,992 | 797,650 |
| Rolled sheet piling..... | 49,679 | 57,264 | 57,189 | 74,793 | 62,071 |
| Railroad ties..... | 14,968 | 13,826 | 13,278 | 13,826 | 12,266 |
| Rolled forging blooms, forging billets, etc..... | 346,915 | 344,803 | 362,750 | 285,527 | 554,475 |
| Blooms, billets, sheet bars, etc. for export..... | 437 | 187 | 430 | 549 | 11,139 |
| Spike and chain rods, bolt and nut rods, blanks for seamless tubes, etc..... | 1,286,678 | 1,566,084 | *1,888,901 | *1,751,397 | *2,057,503 |
| Total..... | 2,802,105 | 3,365,915 | 3,821,851 | 3,490,513 | 4,055,530 |

* For 1928 includes 1,190,658 tons of blanks or pierced billets for seamless tubes, as compared with 889,336 tons in 1927 and 883,598 tons in 1926; figures for prior years are not available.

PRODUCTION OF CUT NAILS IN 100-LB. KEGS, 1905–1928.

| Years. | Production. | Exports. | Consumption. | Years. | Production. | Exports. | Consumption. |
|---|---|---|---|---|---|---|---|
| 1905... | 1,357,549 | 176,741 | 1,180,808 | 1917... | 461,674 | 101,362 | 360,312 |
| 1906... | 1,189,239 | 169,519 | 1,019,720 | 1918... | 418,811 | 85,668 | 333,143 |
| 1907... | 1,109,138 | 155,212 | 953,926 | 1919... | 394,477 | 65,423 | 329,054 |
| 1908... | 956,182 | 157,319 | 798,863 | 1920... | 844,583 | 86,427 | 758,156 |
| 1909... | 1,207,597 | 222,565 | 985,032 | 1921... | 538,834 | 24,512 | 514,322 |
| 1910... | 1,005,233 | 182,087 | 823,146 | 1922... | 810,206 | 78,602 | 731,604 |
| 1911... | 987,636 | 255,854 | 711,782 | 1923... | 829,604 | 51,515 | 778,089 |
| 1912... | 978,415 | 208,568 | 769,847 | 1924... | 741,668 | 47,537 | 694,131 |
| 1913... | 842,038 | 84,885 | 757,153 | 1925... | 736,111 | 36,265 | 699,846 |
| 1914... | 769,665 | 76,676 | 692,989 | 1926... | 662,403 | 23,979 | 638,424 |
| 1915... | 775,327 | 94,878 | 680,449 | 1927... | 702,536 | 25,715 | 677,121 |
| 1916... | 764,835 | 106,451 | 658,384 | 1928... | 610,784 | 20,042 | 590,742 |



*Pressed steel parts are assembled by welding to make car and bus seats*

# *Large Uses of Steel in Small Ways*

*140th Article*
*Car and Bus Seats*

WITH the development of the steel railway coach came the pressed steel car seat. Now with builders of buses adopting this type of seat the pressed steel seat industry is becoming more important as an outlet for sheet steel.

One of the largest manufacturers of railway seats uses a pedestal base made up of 13-gage steel sheets in two sections. These are cut and pressed to form on heavy semiautomatic machines. The parts are then oxyacetylene welded and afterwards ground smooth and enameled. The common type of base is flanged at the bottom and has six holes punched for fastening to the floor.

The seat generally is made of 13-gage steel sheets which are pressed to form and then fabricated by welding. The back support frequently is made of bar steel, but in one design pressed sheet steel parts are used almost exclusively. Even the corner handles are frequently formed or drawn from sheets.

To make the seats comfortable, the cushions are provided with coil steel springs. The upholstered portion frequently is reinforced with a steel wire which is sewn into the edge.

Altogether approximately 18 pounds of steel are used in a typical bus or railway seat. Those familiar with the demand for these seats estimate that over 150,000 railway and bus seats of the pressed steel type are produced each year in this country, which means a total weight of steel of 1350 tons. In producing seats of this design considerable scrap is unavoidable due to the irregular shape of parts and the necessity for punching. Therefore, it seems conservative to assume that a total of 1700 or 1800 tons of steel is required each year for this product.

### Pedestal Construction Varies

The cast steel pedestal still is used in some localities. The usual type of pedestal in a chair car is made of heavy pressed steel sheets, and government statistics show that approximately 10,000 of these pedestals are built each year. The number of steam and electric passenger cars built each year in this country is close to 4000. Add to this the 6000 to 8000 buses built in a year, and it is evident that the annual total of cars requiring seats of the railway type exceeds 10,000.

The strong demand for lighter weight of parts entering into highway bus design has led to the use of alloy steel for many bus seat parts. This is particularly true of the frame supporting the back. The former heavy castings used for back supports have given way to pressed parts made of alloy steel, at a saving in weight of approximately one-half. A rapidly growing field for these light alloy steel seats is found in the airplane industry. The present production of airplanes of a type requiring passenger seats exceeds 1000 a year.

*THIS is the one hundred fortieth of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the American tonnage.*

*Among articles appearing every two weeks and not included in Vol. I containing 51 separate descriptions are:*

| | |
|---|---|
| *Swords* | *Bathroom Fixtures* |
| *Paving Guards* | *Snow Fences* |
| *Reaction Kettles* | *Stairs* |
| *Fire Screens* | *Cork Screws* |
| *Voting Machines* | *Universal Shafts* |
| *Display Racks* | *Sewing Machines* |
| *Steel Stamps* | *Lanterns* |
| *Wire Screens* | *Cleats* |
| *Typewriter Spools* | *Axes* |
| *Chain Hoists* | *Steel Ceilings* |
| *Newspaper-Vending Boxes* | *Card Tables* |
| | *Welding Rods* |
| *Wire Lamp Shades* | *Washing Machines* |
| *Belt Fasteners* | *Resilient Road Guards* |
| *Sap Spouts* | *Screw Drivers* |
| *Flexible Conductors* | *Windows* |
| *Foundry Flasks* | |

## Plans Pack Furnaces

Central Alloy Steel Corp., Massillon, O., is equipping its entire Massillon sheet rolling mill works with modern pack furnaces. The effect of this improvement will be in increase the productive capacity of autobody sheets at the plant to 150,000 tons annually, or by nearly 40 per cent. The equipment, which will cost $250,000, will be completed by the end of the present year.

# Editorials

## Steel Industry Sees Changes

TENDENCIES and cross currents in the iron and steel industry are shown by statistics, which not always are simply compilations, without a message. In the final figures of the American Iron and Steel institute, presented elsewhere in this issue, it is noted that Pennsylvania rolled about 34.70 per cent of all the rolled steel produced in 1928, whereas in 1927 that state produced 36.79 per cent. Likewise Ohio produced 22.18 per cent in 1928 and 21.18 per cent in 1927.

These figures indicate the movement westward of steel producing activities. They are significant of the movement of the market westward as a consuming proposition and the consequent urge for production at least freight rates. Probably another factor in giving Ohio a lead in percentage is the heavy use of sheet steel in automotive building, the center of sheet production being in the Valleys, in that state.

Change in form is shown by the increase of steel strip from 1,318,419 tons in 1927 to 2,161,988 tons in 1928. This is another fruit of automotive use, as well as a result of engineering skill in devising methods of manufacture of strips to serve better than other forms of steel.

Growing use of alloy steels is shown in the enlarged production, 3,214,909 tons, against 2,531,748 tons in 1927. This is concrete proof of the statement so frequently made that alloy steels are displacing plain steel for many uses.

## Predict Increased Shipments

FORECASTING railroad freight shipments during April, May and June, standing committees of the Midwest Shippers Advisory board recently estimated general gains in the territory covered by that board as compared with the second quarter in 1928. Recent carloadings already have tended to bear out estimates for the current quarter. The committee on iron and steel estimated that about 25 per cent more cars would be needed than in April, May and June, last year, or a total of 85,000 cars for the quarter.

In farm implements, the estimated gain in shipments from the second quarter a year ago is 10 per cent; machinery and machine tools, 7 per cent; and shipments of coke from ovens in the Midwest states, 10 to 15 per cent. In Illinois, Indiana, Wisconsin and Iowa, as reported by the cement committee, more than 2000 miles of hard roads are to be built this season. It is significant to note that virtually no complaints as to railroad car service were reported to the committees since the board's last quarterly meeting.

## Forge Shops More Efficient

DURING the past ten years the status of the American forging industry has changed in many important respects. Requirements of the manufacturers of automobiles have been largely responsible for a rapid development which has affected not only the economic position of forge shops but also the management and operating methods employed. The result has been a striking improvement in efficiency, which has been accomplished largely through accurate scheduling of material and careful control of work in process. The extent to which these details have been perfected by a large manufacturer of forgings is clearly explained in the first article in this issue. It reflects a general trend toward mechanical handling in this branch of industry.

## River Transportation Increasing

THE year to date has witnessed further steady growth in transportation on inland streams and in the building up of river facilities. Extensive construction work in furthering the navigability of the Ohio river its entire length from Pittsburgh to Cairo, Ill., is reflected in heavier shipments of steel products to points in the South and Southwest. River shipments increased during the first quarter in the active Pittsburgh district despite the fact that unusually severe weather conditions held up considerable traffic. The total movement for the three months of 8,832,224 tons was an increase of about 200,000 tons over the figure for the 1928 period.

How rapidly steel producers have taken advantage of river transportation is seen from the fact that first quarter shipments of steel products in the Pittsburgh district nearly equalled the total tonnage for all of 1923. The first quarter movement this year totaled 470,116 tons, compared with 483,089 tons for the 12 months

of 1923 and 538,932 tons for all of 1924. The tonnage for the first quarter of 1928 was 466,107.

Indication that additional gains are in store for river traffic is seen from the activity of builders of floating equipment. During the first four months of this year, barge builders in the Pittsburgh district received orders for nearly 200 steel barges requiring about 40,000 tons of fabricated plates and shapes in their construction. Practically all of these builders of river craft have sufficient business on their books to keep them well occupied through the remainder of the first half of the year.

Freight movement over the Ohio river system appears to be only at the beginning of a great development of considerable value to the many industries in its proximity. Steel producers, in early taking advantage of river facilities, are in a favorable position to benefit further as the result of recent improvements in navigability of the streams.

## Blast Furnace Productivity Increasing

AGAIN of 110 per cent in labor productivity at American blast furnaces since the prewar years 1912-1914 compares with an increase in the hourly wage rate of approximately 150 per cent, and a reduction of 20 to 30 per cent in the number of working hours per shift. The output of pig iron per man-hour as shown by investigations by the bureau of labor statistics has advanced from 0.141 gross tons to 0.30. It now requires less than 3 hours 23 minutes of labor time to produce a ton of pig iron, as against more than 7 hours in the former years.

Many factors have contributed to this result, the most important of which is the change in furnace dimensions, and the abandonment of small, inefficient stacks. Thus the average output of pig iron per stack-day has been raised from 262.3 tons in 1914 to more than 398 tons.

Another important factor has been the more general use of machinery, particularly the pig casting machine, the skip hoist and auxiliary equipment, and power cranes. Reorganization of crews resulting from the change from a 12-hour day to an 8-hour day basis, and the resultant goodwill shown by the workers also has had a favorable influence.

Voluminous tables compiled by the bureau of labor statistics shows Great Lakes furnaces averaging a daily output of 460 gross tons, compared with approximately 300 tons in the prewar period, accompanied with a remarkable decline in coke consumption. The latter development is particularly noted in the four northern furnace districts. In 1914 these furnaces consumed 2546 pounds of coke in producing a ton of iron, while now they require less than 1979 pounds per ton.

Better furnace operation, and larger use of scrap account in large measure for this reduction, while the bureau's analysis points out significantly that nearly all of them use Mesabi ores, the western and Pennsylvania-New York districts showing a markedly different coke consumption, and thus emphasizing the different quality of ores used in those districts.

Each year some gains have been made in average blast furnace productivity, a trend which if continued will make it more difficult for "revolutionary" direct reduction methods to overtake standard practice.

## Employment Highest of Two Years

EXCEPTIONALLY good employment conditions prevail in manufacturing industries, the general index figure as compiled by the bureau of labor statistics registering 97 for the first quarter of the year, compared with 93.8 for 1928, 96.4 for 1927, and 100 for the year 1926. Steps have been taken by the American Statistical Association to insure a census of unemployment when the population of the United States is counted in 1930. The fact that employment is good, and shows a rising tendency should not detract from the argument for a census of unemployment, when the federal bureau itself admits there is no accurate basis for determining this important factor.

Enormous gains in employment were reported by the bureau in the first quarter, compared with 12 months ago, such as 36 per cent in machine tools; 32 per cent in automobiles; 21.3 per cent in agricultural implements; 14.3 per cent in electrical machinery; 13 per cent in foundry and machine shop products; 11 per cent in stoves and 7.5 to 10 per cent in iron and steel, structural ironwork, stamped metal ware and similar industries. Even shipbuilding showed an employment gain of 6 per cent. Continued improvement was noted in most of these industries through the first quarter. The National Metal Trades association reports March employment in machine shops far above the average for the years 1925, 1926 and 1927, and the trend in March moving sharply upward.

Employment in iron and steel so far this year is above the averages for 1928 and 1927. For the first quarter the index figure is 94.1, compared with 100 for 1926. A reflection of recent rates of operations and production is to be found in the employment figures for the industry, though with new high records for output of steel the number of employed does not touch the high mark of previous years.

IRON TRADE REVIEW

Volume 84, Number 19 — Published Every Thursday

*E. L. SHANER, Editor.* — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*

Ornamental Architectural Units Built by Craftsmen, Using Cast Steel and Welding. Page 1258.

FEWER changes in rates than were anticipated appear in the administration tariff bill introduced Tuesday by Chairman W. C. Hawley of the house ways and means committee. Pig iron remains unchanged at $1.12½ and manganese ore retains its duty of 1 cent per pound on manganese content, despite the plea of steelmakers that it be placed on the free list. The treatment of alloys is altered and the status of domestic cast iron pipe is improved by the new proposals. The details of the principal changes are reported and discussed in an article appearing on pages 1297 and 1298.

# The Readers' Page

## CONTENTS

*For May 9, 1929*

### SPECIAL ARTICLES

Scheduling and Handling Material in Modern Forge Shop—By Hugh Dean....1253
Steel, Cast and Welded, Copies Ancient Craft ....1258
Employ Improved Refractory Shapes in Lining Inland Stacks—By F. J. Binckes and H. W. Lindhardt ....1260
General Procedure in Tool Steel Heat Treatment Is Recommended....1262
Steel Merger Forecast at Cleveland....1264
Engineers Study Plant Operation and Production Problems ....1265
Machine Tool Digest ....1268
1929 Steel and Finished Material Output a Record ....1270
Large Uses of Steel in Small Ways—Car and Bus Seats ....1272
Editorials ....1273

### BUSINESS TREND

Better Profits Appear for Steel Industry —By John W. Hill....1276

Steel Corporation Earnings .... 1276
Pig Iron Situation 1277
Furnace Production Rate .... 1277
Employment Index 1278
Industrial Production .... 1278
Weekly Freight Traffic .... 1279
Steel Foreign Trade .... 1279

### MARKET REPORTS

Review of Markets ....1280
Iron and Steel Prices....
....1280, 1281, 1282, 1285, 1295, 1314

Pig iron .... 1283
Coke .... 1284
Ferroalloys .... 1284
Nuts, Bolts, Rivets 1284
Iron and Steel Scrap .... 1285
Semifinished .... 1286
Bars .... 1287
Plates .... 1287
Pipe .... 1288
Sheets .... 1289
Iron Ore .... 1289
Tin Plate .... 1289
Structural Shapes 1290
Reinforcing Bars.... 1291
Railroad Equipment .... 1292
Cold Finished Steel 1293
Wire and Nails.... 1293
Strip Steel .... 1293
Nonferrous Metals 1294
Coke By-Products... 1294
Warehouse Markets 1295
Pacific Coast Markets .... 1296
Foreign Markets.... 1305
Machinery Markets 1307
Crane Inquiry and Awards .... 1307

### GENERAL NEWS

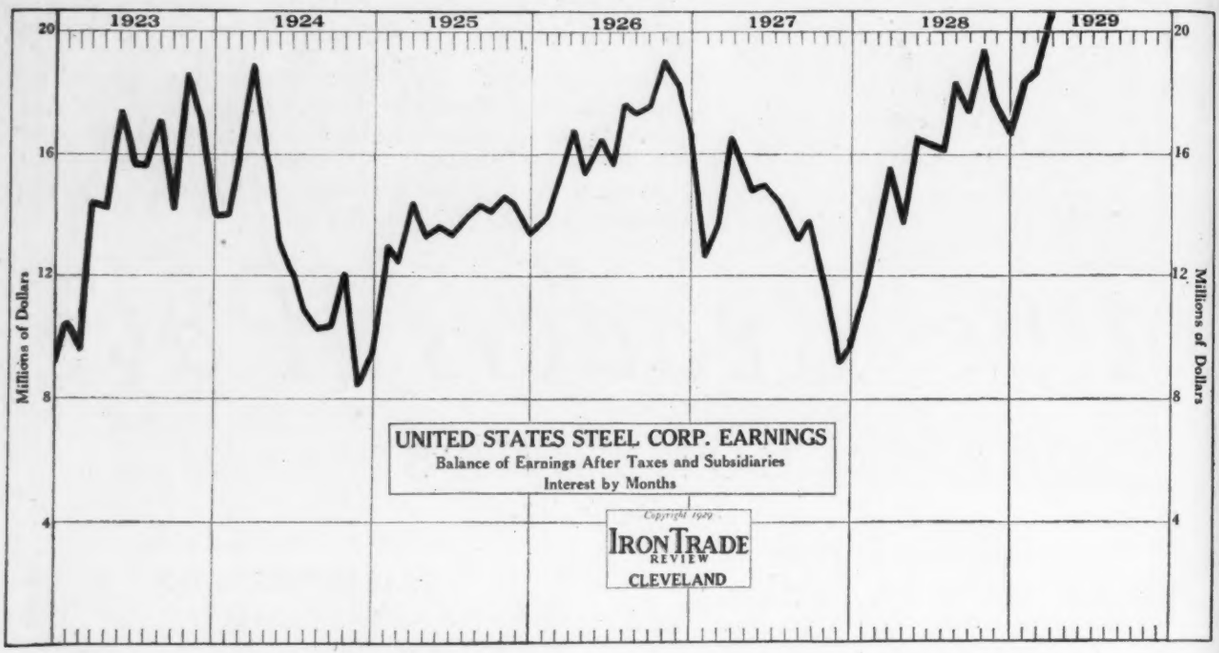
Few Changes in Metals Schedule of Tariff ....1297
Iron Output Makes April Record....1301
Industrial Men in the Day's News— Strickland Kneass Jr. ....1302

Here and There in Industry .... 1299
Men of the Industry .... 1303
Obituary .... 1308
Construction and Enterprise .... 1309
New Incorporations 1311
Trade Publications 1312

IRON TRADE REVIEW is published by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulation; Associated Business Papers Inc.; and National Publishers Association. Branch offices: 1147 Peoples Gas Bldg., Chicago; 410 Traction Bldg., Cincinnati; 2203-2206 No. 220 Broadway, New York; 2148-49 Oliver Bldg., Pittsburgh, 1703-11 Claus Spreckel Bldg., San Francisco; 1653 Pennsylvania avenue, Washington; and Boston. Foreign offices: Caxton House, Westminster S. W. 1, London; 9 Rue de Londres, Paris, France; Wilhelmstrasse 114, Berlin, S. W. 48, Germany; cable address: *PENTON*, Cleveland; *IROTRAPEN*, London. Terms: Subscription in United States, Cuba and Mexico, $6 per year; in Canada, $8.50 per year and in Great Britain and other countries £2:0:0 per year. *Entered at the Postoffice at Cleveland as Second Class Matter.* *Copyright 1929 by the Penton Publishing Co.*

*The A. B. P. is a nonprofit organization whose members have pledged themselves to a working code of practice in which the interests of the men of American industry, trade and professions are placed first—a code demanding unbiased editorial pages, classified and verified paid subscribers and honest advertising of dependable products*

# The Business Trend




## Better Profits Appear for Steel Industry

By JOHN W. HILL, Financial Editor

EVIDENCES of basic changes in the current affecting the prosperity of the iron and steel industry have been accumulating with great force since the beginning of 1929. Not only have operations reached and held extraordinary levels but, earnings for the first quarter of the year have more than borne out the promise of improvement which appeared last year.

MOST important companies in the industry have reported large gains in earnings over one year ago. The United States Steel Corp. was no exception. This gigantic organization had the highest first quarter earnings in all its history except for the two war years of 1917 and 1916. The net for the period was $60,105,381 compared with $53,186,679 in the preceding quarter and $40,934,032 in the corresponding period of 1928.

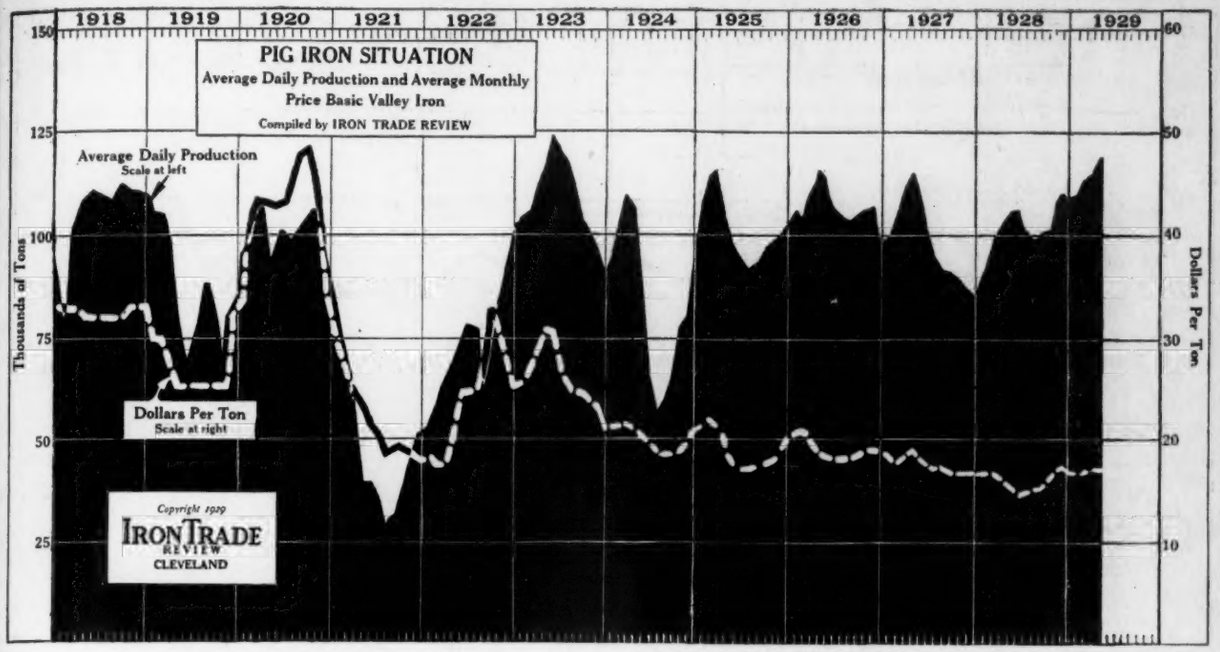
THE gain over one year ago was approximately 50 per cent. March was the peak month in point of profits, with a return of $22,265,342 compared with $19,080,941 in February and with $18,759,098 in January. In March, 1928, the corporation reported $15,453,146 and in March, 1927, it showed a return of $17,128,633. The surplus for the quarter after all charges and dividends was $23,427,117 against $2,573,541 in 1928.

EVEN more impressive than the improvement in steel company earnings is the fact that operations at the start of May were at full capacity. Never in any peace-time year has the industry been called upon for such large production over so extended a period. This situation recalls the state of mind at the close of the war.

AT THAT time iron and steel productive capacity showed a war-time expansion of 40 or 50 per cent. It was feared that many years would elapse before demand caught up with these great productive facilities. Since the war there has been no great actual extension of plants, but rather a great deal of improvement in the direction of increasing efficiency. This has amounted to the same thing as increased capacity, because it has enlarged productivity.

NOTWITHSTANDING this fact, demand swept forward by the rising tide of living standards in this country, has overtaken the iron and steel industry. Had there been any less ability to produce during the first quarter of 1929, chaotic market conditions would have reigned. As it stands better demand and firmer prices apparently have definitely taken the industry out of the slough of subnormal earnings.

# The Business Trend

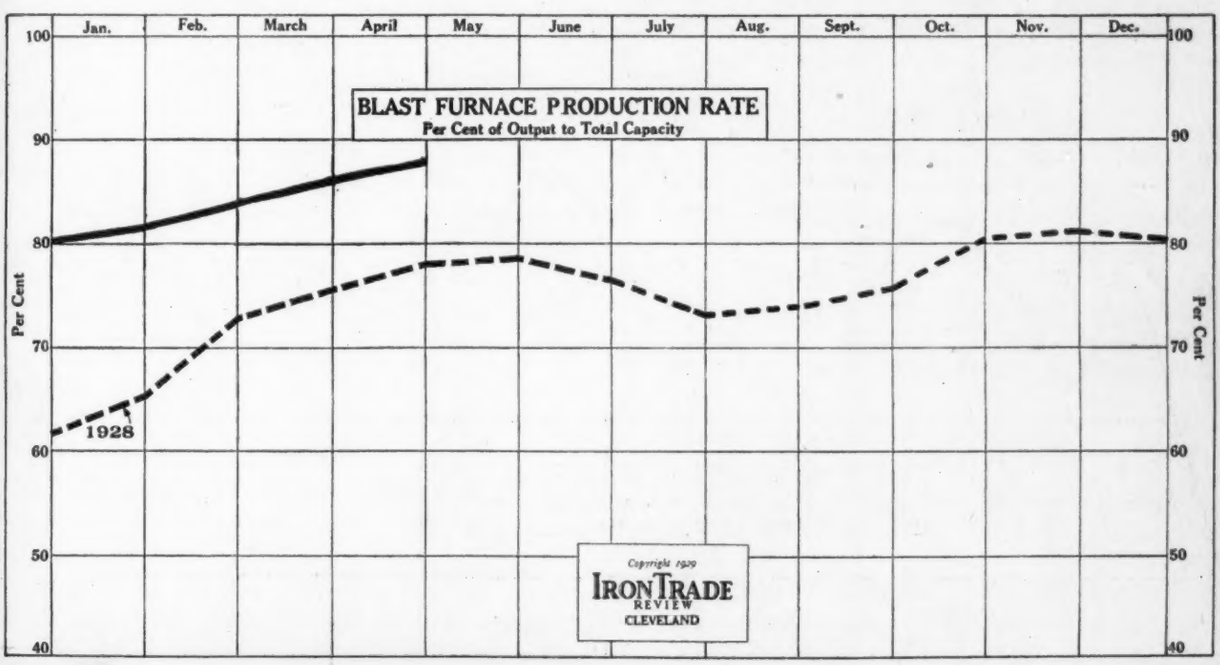



## Pig Iron Situation

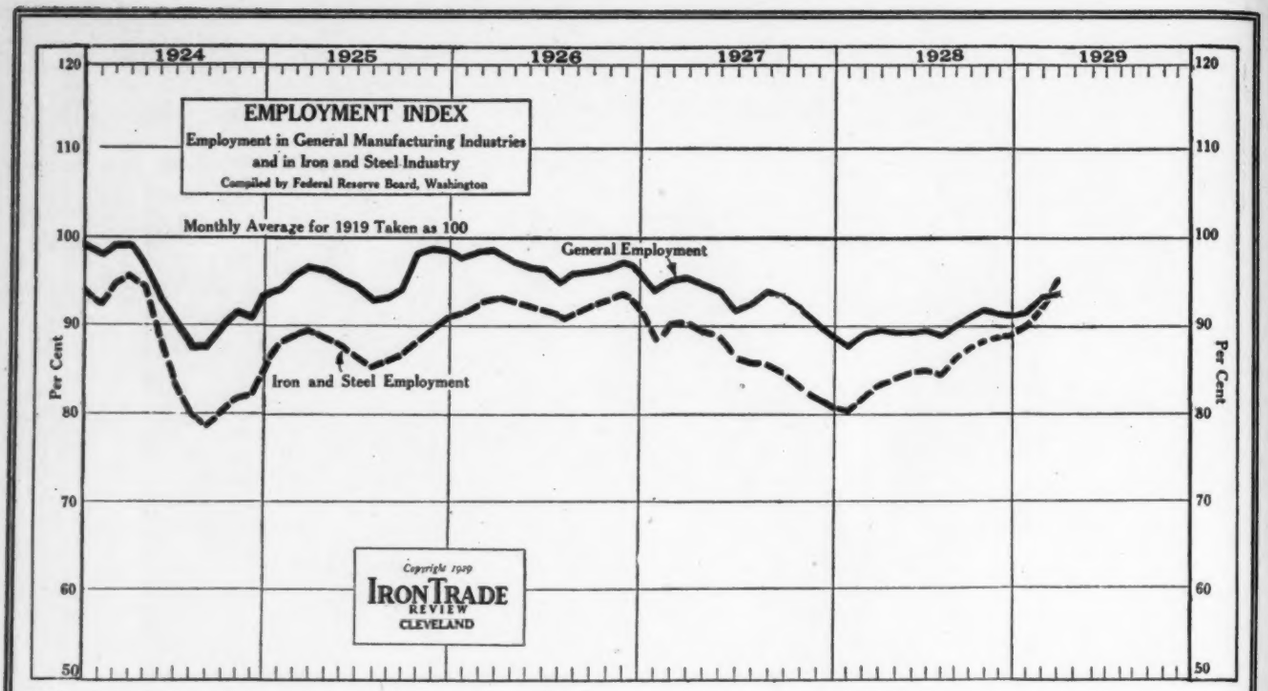
PRODUCTION of pig iron continued at a high level during April with a daily average rate calculated at 122,106 tons. This was an increase of about 2.4 per cent over the output in March. One year ago in April the production of pig iron was at a daily average of 106,066 tons. For the first four months of the year, the output of pig iron stands at 14,024,089 tons compared with 12,135,333 tons in the corresponding period in 1928. Pig iron prices have been holding steady in the last few weeks.

## Blast Furnace Rate

WHILE the average daily rate of output of pig iron was increasing in April three more stacks were in operation at the end of the month than was true of one month before. At the close of April 216 blast furnaces were producing pig iron, or the greatest number since April, 1927. The rate of operation of furnaces in April was 88.7 per cent of production to capacity. This compared with 86.7 per cent one month before and 78 per cent one year ago. The capacity of furnaces is now 50,367,665 tons.



# The Business Trend

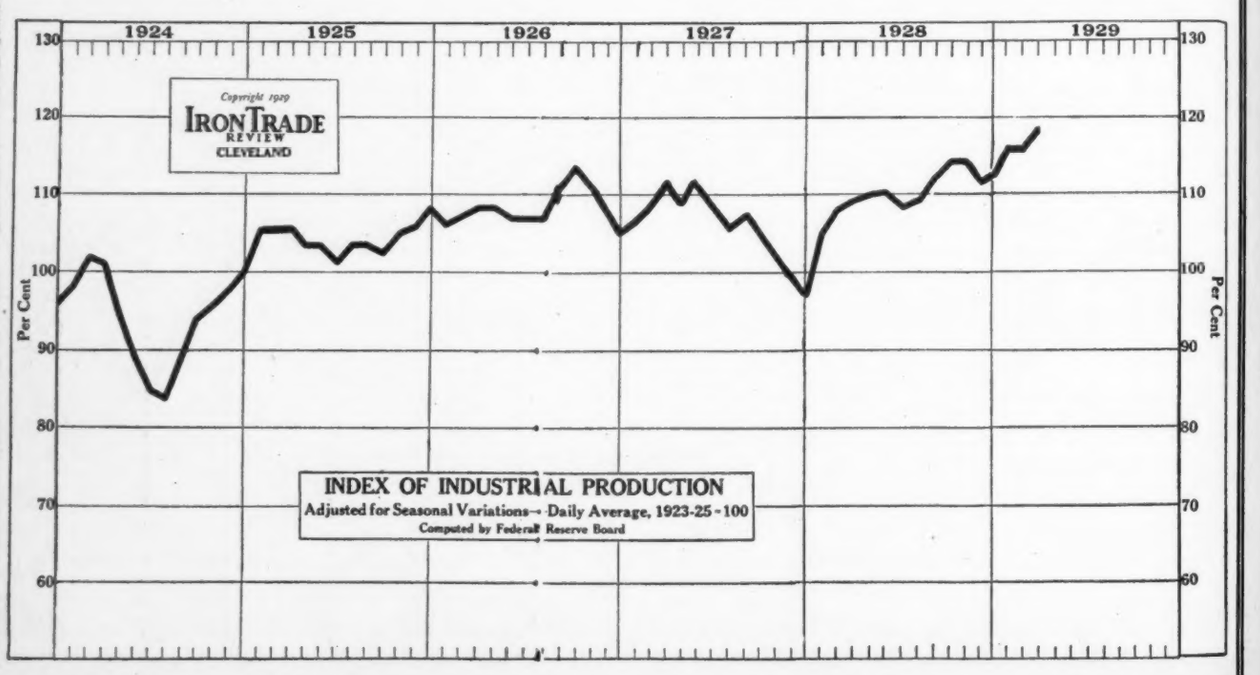



## Employment Index

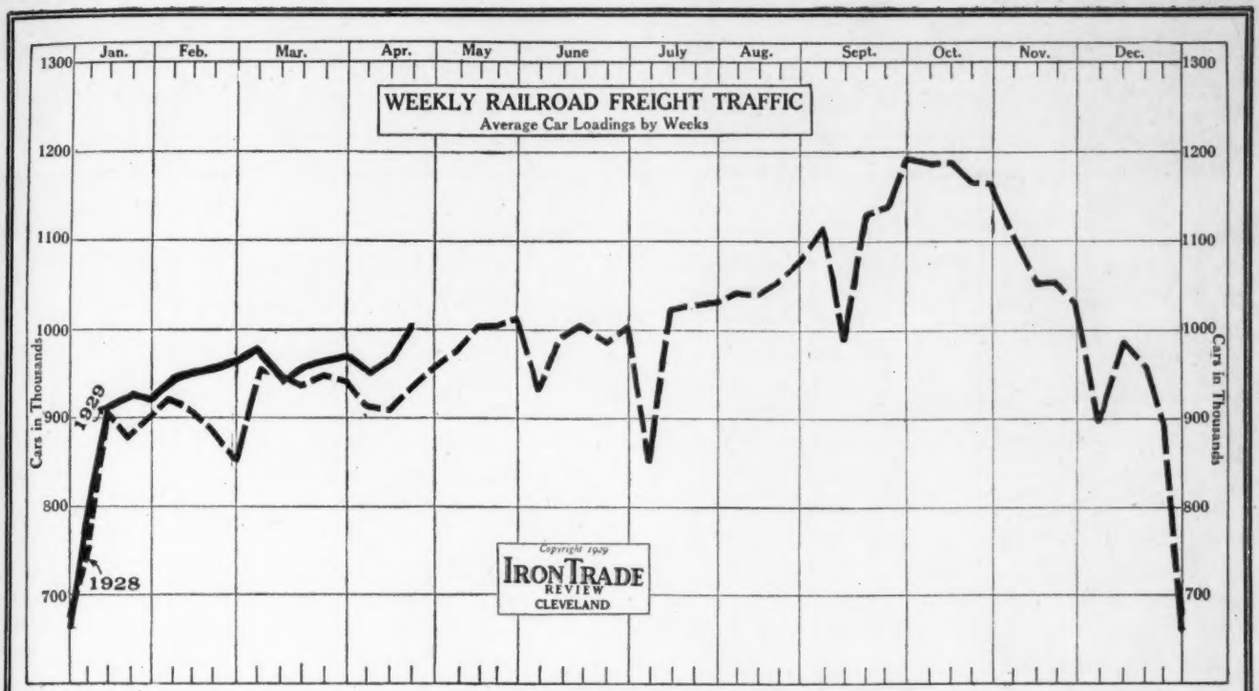
VOLUME of factory employment and payrolls increased during this spring to the highest level in some years. Employment in general manufacturing industries stood at an index of 93.8 in March, according to the compilation of the Federal Reserve board at Washington. This compared with 93 one month before and with 89 one year ago. Iron and steel factory employment continues to make important gains. This index stood at 94.3 in March compared with 92.6 in the preceding month.

## Industrial Production

THE production of manufactures reached a new high level this spring. In March the index of industrial production computed by the Federal Reserve board at Washington stood at 119. This compared with 117 one month before and 110 one year ago. Automobile output was unusually large and steel ingot production was reported to be above the rated capacity. Outputs of refined copper, lumber, cotton and silk textiles, and sugar were also large for the season. There was seasonal recession in some lines.



# The Business Trend

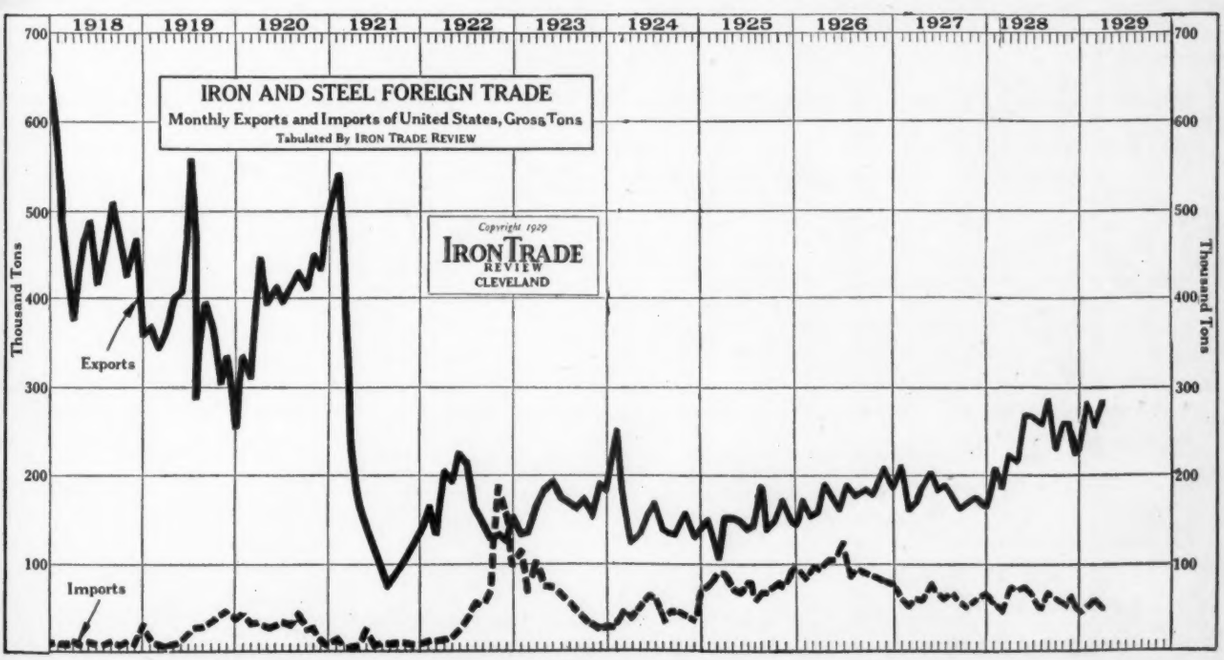



## Weekly Freight Traffic

REVENUE freight car movements during the third week of April touched the highest point of this year to date. A large gain over the corresponding week of one year ago was shown. Loadings for the week ended April 20 totaled 1,400,156 cars compared with 945,289 cars in the like week of 1928, an increase of 57,867 cars. A gain of 32,426 cars was registered compared with the preceding week, when loadings stood at 971,730 cars. Increased industrial activity is reflected in the greater volume loadings.

## Steel Foreign Trade

MARCH and the first quarter of 1929 brought increased exports of iron and steel products and decreased imports. During the month 270,925 tons of iron and steel products were exported compared with 259,711 tons in February and 221,035 tons in March, 1928. Total exports for the period were 804,932 tons compared with 613,608 tons one year before. Imports for the first three months stood at 165,561 tons compared with 181,528 tons one year before. March imports were 52,622 tons.


1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929
IRON AND STEEL FOREIGN TRADE
Monthly Exports and Imports of United States, Gross Tons
Tabulated By IRON TRADE REVIEW
Copyright 1929
IRON TRADE REVIEW
CLEVELAND
700 600 500 400 300 200 100
Thousand Tons
Exports
Imports

# Steel Shipments Continue Heavy

## *Finishing Mills Reluctant To Accept Third Quarter Business, as Advance in Semifinished Becomes More General—Basic Iron Also Stronger*

STEEL producers are swinging into the fifth month of the year operating their plants close to capacity and still unable to satisfy demands. New orders for some finished products are tapering slightly from the high points of recent weeks, but the steady flood of specifications on contracts emphasizes the shortage of steel for finishing operations. Specifications for some of the leading interests in the past week were the best of five weeks. Delivery dates have not materially shortened, while scarcity of semifinished steel is becoming a more serious factor, and with the more general advance in prices of sheet bars, billets and slabs, is leading finishing mills to take steps to prevent the pyramiding of second quarter orders, and to refuse business for third quarter.

### Basic Sells at 50-Cent Advance

Steelmaking iron is stronger, a single order for 15,000 tons of basic iron bringing $18.50, valley, 50 cents more than the price done on several thousand tons previously. Shipping instructions for pig iron generally indicate May will continue the high average daily rate of March-April. Recent sales of low phosphorus pig iron in eastern districts total 25,000 tons.

### Pig Iron Output an April Record

Final figures compiled by IRON TRADE REVIEW show the average daily rate of coke pig iron production in April was 122,106 gross tons, the highest rate for any April in history, and the third highest for any month. The closest approach to this record for any previous April was in 1923, with a daily rate of 118,210 tons. Only May, 1923, with an average of 124,790 tons, and June, 1923, with a daily rate of 122,262 tons, exceeded this April's accomplishment. The April rate was an increase over that of March of 2444 tons, or 2.4 per cent. The total output for April was 3,663,167 gross tons, this also being the highest for any April in history. Production in the first four months of 1929 reached the total of 14,024,089 tons, a new record for such a period, and 732,042 tons ahead of the best previous record made in 1923.

Plate backlogs have been extended in the Middle West and Pittsburgh districts, although unfilled

## Comparative Prices of Iron, Steel and Coke

**Representative Market Figures for This Week, Last Month, Three Months and One Year Ago**

| | May 8, 1929 | April 1929 | Feb. 1929 | May 1928 |
|---|---|---|---|---|
| **PIG IRON** | | | | |
| Bessemer, del. Pittsburgh | $20.26 | 20.26 | 19.86 | 19.26 |
| Basic, valley | 18.00 | 18.00 | 17.50 | 16.20 |
| Basic, eastern, del. eastern Pa. | 20.65 | 20.25 | 20.50 | 19.10 |
| No. 2 foundry, del. Pittsburgh | 20.26 | 19.86 | 19.26 | 18.86 |
| No. 2 foundry, Chicago | 20.00 | 20.00 | 20.00 | 18.20 |
| *Southern No. 2, Birmingham | 15.50 | 15.50 | 16.50 | 16.00 |
| **No. 2X, Virginia furnace | 20.75 | 20.75 | 21.25 | 20.50 |
| **No. 2X, eastern del. Phila. | 22.76 | 22.26 | 22.01 | 21.26 |
| Malleable, valley | 18.50 | 18.50 | 18.00 | 17.25 |
| Malleable, Chicago | 20.00 | 20.00 | 20.00 | 18.20 |
| Lake Superior charcoal, del. Chicago | 27.04 | 27.04 | 27.04 | 27.04 |
| Gray forge, val., del. Pittsburgh | 19.26 | 19.26 | 18.76 | 18.76 |
| Ferromanganese, del. Pittsburgh | 109.79 | 109.79 | 109.79 | 109.79 |
| *1.75 to 2.25 silicon. **2.25 to 2.75 silicon. | | | | |
| **COKE** | | | | |
| Connellsville furnace, ovens | 2.75 | 2.75 | 2.90 | 2.55 |
| Connellsville, foundry, ovens | 3.75 | 3.75 | 3.75 | 3.55 |
| **SEMIFINISHED MATERIAL** | | | | |
| Sheet bars, open-hearth, Youngstown | 36.00 | 35.00 | 34.25 | 33.10 |
| Sheet bars, open-hearth, Pittsburgh | 36.00 | 35.25 | 34.25 | 33.50 |
| Billets, open-hearth, Pittsburgh | 36.00 | 34.50 | 33.25 | 32.50 |
| Wire rods, Pittsburgh | 42.00 | 42.00 | 42.00 | 44.00 |

| | May 8, 1929 | April 1929 | Feb. 1929 | May 1928 |
|---|---|---|---|---|
| **FINISHED MATERIAL** | | | | |
| Steel bars, Pittsburgh | 1.95 | 1.95 | 1.90 | 1.85 |
| Steel bars, Chicago | 2.05 | 2.05 | 2.00 | 2.00 |
| Steel bars, Philadelphia | 2.27 | 2.27 | 2.27 | 2.17 |
| Iron bars, Chicago | 2.05 | 2.05 | 2.05 | 2.00 |
| Shapes, Pittsburgh | 1.95 | 1.95 | 1.90 | 1.85 |
| Shapes, Philadelphia | 2.00 | 2.06 | 2.01 | 2.08 |
| Shapes, Chicago | 2.05 | 2.05 | 2.00 | 2.00 |
| Tank plates, Pittsburgh | 1.95 | 1.95 | 1.90 | 1.85 |
| Tank plates, Philadelphia | 2.15 | 2.15 | 2.10 | 2.05 |
| Tank plates, Chicago | 2.05 | 2.05 | 2.00 | 2.00 |
| Sheets, black, No. 24, Pittsburgh | 2.95 | 2.90 | 2.85 | 2.75 |
| Sheets, blue anl., No. 10, Pittsburgh | 2.20 | 2.15 | 2.10 | 2.00 |
| Sheets, gal., No. 24, Pittsburgh | 3.70 | 3.65 | 3.60 | 3.65 |
| Sheets, black, No. 24, Chicago | 3.10 | 3.10 | 3.00 | 2.85 |
| Sheets, blue anl., No. 10, Chicago | 2.35 | 2.35 | 2.25 | 2.20 |
| Sheets, galvanized, No. 24, Chicago | 3.85 | 3.85 | 3.75 | 3.80 |
| *Plain wire, Pittsburgh | 2.50 | 2.50 | 2.50 | 2.50 |
| *Wire nails, Pittsburgh | 2.65 | 2.65 | 2.65 | 2.60 |
| Tin plate, per base box, Pittsburgh | 5.35 | 5.35 | 5.35 | 5.25 |
| *To large jobbers. | | | | |
| **SCRAP** | | | | |
| Heavy melting steel, Pittsburgh | 18.00 | 18.50 | 18.60 | 15.00 |
| Heavy melting steel, eastern Pa. | 16.50 | 17.00 | 16.30 | 13.75 |
| Heavy melting steel, Chicago | 15.50 | 17.00 | 16.25 | 12.95 |
| No. 1 wrought, eastern Pa. | 16.25 | 16.25 | 16.25 | 15.25 |
| No. 1 wrought, Chicago | 16.50 | 16.65 | 15.75 | 13.05 |
| Rails for rolling, Chicago | 17.50 | 17.50 | 17.50 | 14.35 |

# Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

### STEEL PLATES

| | |
|---|---|
| Pittsburgh, base | 1.95c |
| Philadelphia, del. | 2.15c to 2.25c |
| New York, del. | 2.225c to 2.325c |
| Boston, del. | 2.265c to 2.415c |
| Chicago, base | 2.05c to 2.15c |
| Cleveland, delivered | 2.14c |
| Lackawanna, N. Y., base | 2.05c to 2.15c |
| Birmingham, base | 2.10c to 2.20c |
| Coatesville, Pa., base | 2.00c to 2.10c |
| Pacific Coast, c.i.f. | 2.35c |
| St. Louis, del. | 2.27c |
| Detroit, del. | 2.19c to 2.24c |

### STRUCTURAL SHAPES

| | |
|---|---|
| Pittsburgh, base | 1.95c |
| Philadelphia, base | 2.00c to 2.11c |
| New York, del. | 2.195c to 2.245c |
| Boston, del. | 2.265c to 2.415c |
| Chicago, base | 2.05c to 2.15c |
| Cleveland, delivered | 2.14c |
| Lackawanna, N. Y. | 2.05c to 2.15c |
| Birmingham, base | 2.10c to 2.20c |
| Bethlehem, Pa., base | 2.00c to 2.10c |
| Pacific Coast, c.i.f. | 2.35c |
| Detroit, del. | 2.19c to 2.24c |

### BARS

SOFT STEEL

| | |
|---|---|
| Pittsburgh, base | 1.95c |
| Chicago, base | 2.05c to 2.15c |
| Birmingham, base | 2.10c to 2.20c |
| Lackawanna, N. Y., base | 2.05c to 2.15c |
| Pacific Coast, c.i.f. | 2.35c |
| Cleveland, base, local mills | 1.95c |
| Cleveland, del., outside mills | 1.95c to 2.00c |
| Philadelphia, del. | 2.27c to 2.37c |
| New York, delivered | 2.29c to 2.39c |
| Boston, delivered | 2.265c to 2.415c |
| Detroit, del. | 2.19c to 2.24c |
| Pittsburgh, cold finishing | 2.05c |
| Pittsburgh, forging quality | 2.15c |

RAIL STEEL

| | |
|---|---|
| Chicago Heights | 1.95c |
| Eastern mills | 1.85c to 1.95c |

IRON

| | |
|---|---|
| Chicago, base | 2.05c to 2.15c |
| New York, delivered | 2.14c to 2.24c |
| Philadelphia, delivered | 2.12c to 2.22c |
| Pittsburgh, refined | 2.75c to 4.25c |

REINFORCING

| | |
|---|---|
| Pittsburgh, billet, cut lengths | 2.30c |
| Stock lengths from mill | 2.00c |
| Chicago, billet | 2.40c |
| Chicago, rail steel | 2.00c to 2.05c |
| Chicago, rail steel, road and bridge work | 1.95c to 2.05c |
| Philadelphia, cut lengths | 2.57c to 2.62c |

### SHEETS

SHEET MILL BLACK

| | |
|---|---|
| No. 24, Pittsburgh, base | 2.85c to 2.95c |
| No. 24, Philadelphia, delivered | 3.17c to 3.27c |
| No. 24, Gary, Indiana Harbor | 3.05c |
| No. 24, Chicago, delivered | 3.10c |
| No. 24, Birmingham, base | 3.10c |
| No. 24, St. Louis, del. | 3.27c |
| No. 24, Pacif. coast ports, c.i.f. | 3.50c |

TIN MILL BLACK

| | |
|---|---|
| No. 28, Pittsburgh, base | 3.00c |
| No. 28, Gary, base | 3.10c |

GALVANIZED

| | |
|---|---|
| No. 24, Pittsburgh, base | 3.60c to 3.70c |
| No. 24, Philadelphia, delivered | 3.92c to 4.02c |
| No. 24, Gary, Indiana Harbor | 3.80c |
| No. 24, Chicago, delivered | 3.85c |
| No. 24, Birmingham, base | 3.85c |
| No. 24, St. Louis, del. | 4.02c |
| No. 24, Pacif. coast ports, c.i.f. | 4.25c |

BLUE ANNEALED

| | |
|---|---|
| No. 10, Pittsburgh, base | 2.10c to 2.20c |
| No. 10, Philadelphia, delivered | 2.42c to 2.52c |
| No. 10, Gary, Indiana Harbor | 2.30c |
| No. 10, Chicago, delivered | 2.35c |
| No. 10, Birmingham, base | 2.35c |
| No. 10, St. Louis, del. | 2.52c |
| No. 10, Pacif. coast ports, c.i.f. | 2.725c |

AUTOMOBILE

| | |
|---|---|
| No. 20, Pittsburgh, base | 4.10c |
| No. 20, Detroit, delivered | 4.39c |

FURNITURE

| | |
|---|---|
| Pittsburgh | 4.20c |

*(Turn to the following page)*

plate business at Pittsburgh is not as large as that in steel bars. About 30,000 tons of finished steel, mainly plates, has been placed on Chicago district mill books in the past week for additional car orders. An eastern Pennsylvania mill has booked 5000 to 10,000 tons of plates for shipment to Milwaukee, because of mill congestion at Chicago. New inquiries for plates for western oil refinery work total 15,000 to 20,000 tons. An important eastern plate mill is operating at capacity for the first time in its history.

### Semifinished Advance More General

Independent mills in the Youngstown district have followed the leading interest in advancing sheet bars, billets and slabs to $36, base, Youngstown and Pittsburgh, representing for the valley makers an increase of $1 a ton. Practically all eastern, central and Middle West mill interests now are on the higher basis. While operations are at the highest point since the war supplies of semifinished steel still fall short of demand, and this scarcity has resulted in further slight curtailment of sheet mill operations in the Pittsburgh and Chicago districts. Some sheet mills are refusing to book orders for third quarter.

While delivery of sheets continues a major problem with the mills, new orders and specifications, especially from the automotive industry, show a moderate decline from the high points of March and April. Eastern mills are unable to schedule delivery of full finished sheets before August or September. Some substantial orders for black sheets have been booked by American mills for shipment to Japan.

### Structural Awards Are Smaller

Structural awards for the week amounting to about 25,000 tons compare with a weekly average of 42,000 tons for 1929 to date. In the New York district 150,000 building trades workers have been granted a five-day week, with a wage increase maintaining their pay the same as for five and one-half days, effective Aug. 24. Builders estimate this will increase construction costs 4 per cent.

Steel bar specifications have receded slightly from the recent high mark, though deliveries in the Middle West have been extended further, to 12 to 16 weeks. Preliminary estimates of April car awards total 7035, against 12,023 in March. The Baltimore & Ohio is about to let 3000 cars. More than 7000 freight cars now are pending on the active list. General awards in the past week include 1800 for western shops.

More than 100,000 tons of 14 to 22-inch steel pipe will be required for a 1400-mile gas line from Monroe, La., to Atlanta, Ga., the general contract for which has just been awarded. About 30,000 tons of 48-inch cast iron pipe for Albany, N. Y., is reported placed. Further slowing in demand for scrap is noted, with price reductions averaging 25 cents a ton on some grades. IRON TRADE REVIEW'S composite of 14 leading products is unchanged this week at $37.07, remaining at the highest point in 28 months.

## Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

| | |
|---|---|
| This week (May 8, 1929) | $37.07 |
| Last week (May 1, 1929) | 37.07 |
| One month ago (April, 1929) | 36.81 |
| Three months ago (February, 1929) | 36.28 |
| One year ago (May, 1928) | 35.54 |
| Ten years ago (May, 1919) | 48.29 |
| Fifteen years ago (May, 1914) | 22.99 |

# Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

**Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products**

## HOOPS, BANDS, STRIPS

| | |
|---|---|
| Hot strip, to 6-in., Pitts. | 2.00c |
| Hot strip 6 1/8 to 24-in., Pitts. | 1.90c |
| Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut length, 1.90c plate basis, or 2.10c blue annealed basis. | |
| Hot strip, bands 6 in. and under, Chicago | 2.10c to 2.30c |
| Do, 6 1/8 to 24 in. | 2.00c to 2.10c |
| Cooperage stock, Pittsburgh | 2.20c |
| Do, Chicago | 2.30c |
| Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over) | 2.75c to 2.85c |
| Worcester, Mass. (3 tons and over) | 3.10c to 3.20c |

## ALLOY STEEL

**Hot Rolled**

F.o.b. Mills

Alloy Quality Bar Base is 2.65c

| S.A.E. Series Number | Alloy differential | Net 100 lb. bars |
|---|---|---|
| 2000 | 0.25 | $2.90 |
| 2100 | 0.55 | 3.20 |
| 2300 | 1.50 | 4.15 |
| 2500 | 2.25 | 4.90 |
| 3100 | 0.55 | 3.20 |
| 3200 | 1.35 | 4.00 |
| 3300 | 3.80 | 6.45 |
| 3400 | 3.20 | 5.85 |
| 4100 0.15-0.25 Mo. | 0.50 | 3.15 |
| 4100 0.25-0.40 Mo. | 0.70 | 3.35 |
| 4600 0.20-0.30 Mo. 1.25-1.75 Ni. | 1.05 | 3.70 |
| 5100 0.60-0.90 Cr. | 0.35 | 3.00 |
| 5100 0.80-1.10 Cr. | 0.45 | 3.10 |
| 5100 Chrome Spring | 0.20 | 2.85 |
| 6100 Bars | 1.20 | 3.85 |
| 6100 Spring Steel | 0.95 | 3.60 |
| Chrome Nickel Vanadium | 1.50 | 4.15 |
| Carbon Vanadium | 0.95 | 3.60 |
| 9250 (flats) | 0.25 | 2.90 |
| 9250 (rounds squares) | 0.50 | 3.15 |

## COLD FINISHED STEEL

| | |
|---|---|
| Cold finished steel bars drawn or rolled, Pitts., Chi., c.l. | 2.30c |
| Do, del. Detroit | 2.575c |
| Shafting (turned, polished) Pittsburgh | 2.30c |
| Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch) | 2.65c to 3.10c |
| Cold finished steel bars, Cleve. | 2.25c to 2.35c |

## WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base

| (Per Pound) | Dealer trade | Large jobbers |
|---|---|---|
| Bright plain wire, 6 to 9 gage | 2.60c | 2.50c |
| Annealed field wire | 2.75c | 2.65c |
| Galvanized wire | 3.20c | 3.10c |
| Barbed wire, galvanized | 3.40c | 3.30c |
| (Per 100-pound keg) | | |
| Wire nails | $2.75 | $2.65 |
| Galvanized nails | 4.75 | 4.65 |
| Polished staples | 3.20 | 3.10 |
| Galvanized staples | 3.45 | 3.35 |
| Cement coated nails | 2.75 | 2.65 |
| Manuf. wire, del. Detroit | | 2.735c |
| Wire nails, del. Detroit | | $2.885 |

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

## CUT NAILS, CHAIN PILING

| | |
|---|---|
| Cut nails, c.l., f.o.b. mills | 2.70c to 2.75c |
| Cut nails, l.c.l. f.o.b. mills | 2.80c to 2.85c |
| Chain, 1-in., proof coil, Pitts. | 6.00c |
| Sheet piling, base, Pittsburgh | 2.25c |

## CAST IRON WATER PIPE

**Prices per net ton**

**Class B pipe**

| | |
|---|---|
| Six-inch and over, Birming'm | $37.00 to 38.00 |
| Four-inch, Birmingham | 41.00 to 42.00 |
| Four-inch, Chicago | 49.20 to 50.20 |
| Six-inch to 24-inch, Chicago | 45.20 to 46.20 |
| Six-inch and over, New York | 38.00 to 40.00 |
| Four-inch, New York | 41.00 to 42.00 |
| Standard fittings, Bir. base | $100.00 |

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

## TIN AND TERNE PLATE

**Prices per 100-pound box Pittsburgh**

| | |
|---|---|
| *Tin plate, coke base | $5.35 |

Gary, Ind., base 10 cents higher.

| | |
|---|---|
| Long ternes, primes, No. 24 | 4.00c to 4.10c |

*Price subject to quantity differentials.

## WASHERS

| | |
|---|---|
| Wrought, c.l., Pitts. dist. | $6.50 to 6.75 off |
| Wrought, c.l., Chicago dist. | $6.70 to 6.90 off |
| Lock: to dealers | 85-5 off |
| Lock: to consumers | 85 off |

## RAILS, TRACK MATERIAL

| | |
|---|---|
| Standard bessemer rails, mill | $43.00 |
| Standard open-h'th rails, mill | $43.00 |
| Relay rails, Pitts., 60 to 90 lb. | $24.00 to 29.00 |
| Light rails, 25 to 45, mill | $36.00 |
| Angle bars, Chicago base | 2.75c |
| Spikes, railroad, Pittsburgh | 2.80c |
| Spikes, small railroad, 7/16-inch and smaller, Pitts. | 2.80c |
| Spikes, boat and barge, Pitts. | 3.00c |
| Spikes, railroad, Chicago | 2.80c |
| Track bolts, Pitts., steam roads | 3.80c |
| Track bolts, Pitts., stand, jobbers | 70 off list |
| Track bolts, Chicago | 3.80c |
| Tie plates, Chicago, Pitts. | $43.00 |

## BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

**CARRIAGE BOLTS**

| | |
|---|---|
| All sizes, cut thread | 60 to 70 off |

Rolled thread 3/8 x 6 and smaller take 10 per cent lower list.

| | |
|---|---|
| Eagle list | 60 to 70 off |

**MACHINE BOLTS**

| | |
|---|---|
| All sizes, cut thread | 60 to 70 off |

Rolled thread 3/8 x 6 and smaller take 10 per cent lower list.

| | |
|---|---|
| Lag screws | 60 to 70 off |
| Plow bolts, Nos. 1-2-3-7 heads | 60 to 70 off |
| Tap bolts | 60 to 70 off |
| Blank bolts | 60 to 70 off |
| Stud bolts without nuts | 60 to 70 off |
| Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk. | |
| Tire bolts | 60-5 off |

**Nuts**

| | |
|---|---|
| Semifinished | 60 to 70 off |

**HEXAGON CAP SCREWS**

| | |
|---|---|
| Milled | 80-10-5 off |
| Upset 1 in. diam. and smaller | 85-off |

**SQUARE HEAD SET SCREWS**

| | |
|---|---|
| Milled | 80-5 off |
| Upset 1 in. diam. and smaller | 80-10-5 off |

## RIVETS

| | |
|---|---|
| Struc., c.l., Pitts-Cleve. | 3.10c |
| Structural, c.l. Chicago | 3.20c |
| **7/16-inch and smaller, Pitts. | 70 and 10 off |
| Chi., Cleve. | 70 to 70 and 10 off |

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

# Raw Materials and Semifinished Products

## SEMIFINISHED MATERIAL

**Prices Per Gross Ton**

**BILLETS AND BLOOMS**

**4 x 4-inch base**

| | |
|---|---|
| Pittsburgh, open-hearth | $36.00 |
| Pittsburgh, bessemer | 36.00 |
| Youngstown | 34.00 |
| Cleveland | 34.00 |
| Philadelphia | 39.30 to 41.30 |
| Chicago | 35.00 to 37.00 |
| Forging, Chicago | 40.00 |
| Forging, Pittsburgh | 41.00 |
| Forging, Philadelphia | 44.30 to 46.30 |

**SHEET BARS**

| | |
|---|---|
| Pittsburgh | $36.00 |
| Youngstown | 36.00 |
| Cleveland | 35.00 |
| Chicago | 37.00 |

**SLABS**

| | |
|---|---|
| Pitts., Young., and Cleve. | $36.00 |

**WIRE RODS**

| | |
|---|---|
| Pittsburgh, Cleveland | $42.00 |
| Chicago | 43.00 |

**SKELP**

| | |
|---|---|
| All grades, Pittsburgh | 1.90c to 1.95c |

## IRON ORE

**LAKE SUPERIOR ORE**

**Per Gross Ton, Lower Lake Ports**

| | |
|---|---|
| Old range nonbessemer, 51½% | 4.65 |
| Mesabi bessemer, 51½% | 4.65 |
| Old range nonbessemer, 51½% | 4.50 |
| Mesabi nonbessemer, 51½% | 4.50 |
| High phosporus, 51½% | 4.40 |

**EASTERN LOCAL ORES**

**Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces**

| | |
|---|---|
| Foundry and basic, 56-63% | 8.00 |
| Copper free low phosphorus 58 to 65 per cent | nominal |

**FOREIGN ORE**

**Cents per unit, alongside docks Atlantic ports**

| | |
|---|---|
| Foreign manganiferous ore, 45-55% iron, 6-8% manganese | 10.50 to 11.00 |
| North African low phosphorus | 11.50 to 11.75 |
| Swedish foundry or basic, 65% | 9.00 to 10.00 |
| Spanish and North African basic, 50 to 60 per cent | 10.00 to 11.00 |
| Newfoundland foundry, 55% | 8.50 to 9.00 |
| Tungsten spot and early fut., short ton unit, duty paid | 16.00 tho 17.00 |

## MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

| | |
|---|---|
| Brazilian | 34 to 36 cents |
| Indian | 34 to 36 cents |
| Caucasian, (53-55 per cent) | 36 to 38 cents |

## FLUORSPAR

**85 and 5 per cent grade**

| | |
|---|---|
| Washed gravel, Kentucky and Illinois mines, per net ton | $18.00 |
| Washed gravel, import duty paid east. tide., gross ton | $20.15 |

## REFRACTORIES

**FIRE CLAY BRICK**

**Per 1000 f.o.b. works**

**First Quality**

| | |
|---|---|
| Pennsylvania | $43.00 to 46.00 |
| Ohio | 43.00 to 46.00 |
| Illinois | 43.00 to 46.00 |
| Kentucky | 43.00 to 46.00 |
| Missouri | 43.00 to 46.00 |
| Maryland | 43.00 to 46.00 |
| Georgia and Alabama | 40.00 to 45.00 |

**Second Quality**

| | |
|---|---|
| Pennsylvania | 35.00 to 38.00 |
| Ohio | 35.00 to 38.00 |
| Illinois | 35.00 to 38.00 |
| Kentucky | 35.00 to 38.00 |
| Missouri | 35.00 to 38.00 |
| Maryland | 35.00 to 38.00 |
| Georgia and Alabama | 30.00 to 35.00 |

**SILICA BRICK**

| | |
|---|---|
| Pennsylvania | 43.00 |
| Joliet, Ill., East Chicago, Ind. | 52.00 |
| Birmingham | 50.00 to 51.00 |

**MAGNESITE BRICK**

**Per Net Ton**

| | |
|---|---|
| 9 x 4½ x 2½ | 65.00 |

**MAGNESITE**

**Net Ton Chester, Pa., and Baltimore base**

| | |
|---|---|
| Dead-burned grain magnesite | 40.00 |

**CHROME BRICK**

**Net ton Chester, Pa., and Baltimore base**

| | |
|---|---|
| 9 x 4½ x 2½ | 45.00 |

# Pig Iron

**Shipments Holding Up to April Rate—New Orders Generally Smaller—15,000 Tons of Basic Sold at $18.50, Valley**

WHILE new orders for pig iron are smaller than in recent weeks, shipments continue heavy. Some of the leading producers report shipping instructions for May from important melters indicate the daily rate of shipments this month will equal those of March and April. About 40 per cent of third quarter requirements of melters in the Chicago district are reported closed. Three cargoes of eastern lake iron arrived in the Chicago district in the past week. A slight decrease in the rate of melt is noted in the eastern district, accompanied by sharper competition for pig iron orders. Steelmaking iron is stronger, 15,000 tons of basic iron selling in the past few days at $18.50, valley, 50 cents above the previous minimum, though $18 has not disappeared.

**PITTSBURGH, May 7.**—The sale of 15,000 tons of basic iron is reported by a valley furnace at $18.50, base, furnace, representing the first transaction at this level, 50 cents above the price prevailing several weeks ago. Delivery of the iron is to start promptly, extending over June and July. In view of the sold-up condition of several furnaces some observers believe a higher price must be paid for a large tonnage than for a small lot. Smaller lots of basic are understood to have been closed at $18, valley. Some producers claim they are not seeking additional business for this quarter. Shipments last month exceeded production in certain instances. Sales of other grades of iron generally are confined to small lots, and sellers report no difficulty in obtaining $18.50, valley, for No. 2 foundry iron and $19 for bessemer and malleable. A substantial tonnage of bessemer iron now is pending and is expected to be closed soon. M. A. Hanna Co. has blown out its Cherry Valley stack for relining, while Davison Coke & Iron Co. expects to blow in its Neville island stack the last week of May.

Bessemer and basic averages as compiled by W. P. Snyder & Co. for last month were $18.50 and $18, respectively, marking a decided increase over the preceding month's averages of $18.39 and $17.60, respectively.

**Boston, May 7.**—Indications of third quarter buying are noted in the market. In the past week probably 3000 tons was sold in this district. Sales of Buffalo No. 2X iron are reported at $19, furnace, as against a former price of $19.50. Mystic Iron Works is competing sharply. The inquiry of a week ago for 2000 tons No. 1X for the third quarter has not been closed.

**Youngstown, O., May 7.**—Merely a few cents a ton in a freight rate, to be exact 8 cents, swung a 15,000-ton basic deal between two local concerns a few days ago. The blast furnace which took the business quoted $18.50, furnace, as did others and the sale was made on that basis. The slight difference in the freight rate as noted placed the business finally. Small lots of No. 2 foundry and malleable continue to be bought by consumers in this district, but furnace yards here contain somewhat more broken stocks than formerly. No. 2 foundry is held firmly at $18.50, while malleable and bessemer hold to the range of $18.50 to $19, valley. There is a noticeable stiffening in pig iron quotations throughout the Mahoning and Shenango valleys.

**Cleveland, May 7.**—Pig iron shipments continue at the average rate of the past two months. One of the leading merchant producers estimates its May shipments as indicated by instructions in hand will exceed those of April. The market for prompt tonnage and third quarter iron is quieter, sales in the past week amounting to 17,000 tons, compared with 23,000 tons in the week preceding. Current inquiries, however, reflect more interest in third quarter requirements, about 12,000 tons pending. Cleveland furnaces continue to quote $18.50, base, furnace, for outside shipment and $19, base, for local consumption. Other lake furnace prices are steady.

**Cincinnati, May 7.**—Inquiries from four consumers for about 2000 tons of northern pig iron for third quarter are pending. Quotations are being made on present price levels. One furnace sold 1000 tons of northern iron during the past week. The southern market is weak.

**Chicago, May 7.**—The pig iron market is active, with spot orders for northern iron a feature. Third quarter tonnage is being placed steadily, but buying for that period has not yet developed into a general movement. It is estimated about 40 per cent of a normal quarter's requirements in this district have been placed for third quarter. Inquiries include 1000 tons of foundry iron for a western Michigan melter for shipment in the next six months. Shipping schedules thus far released indicate the May rate will equal that of March and April. Three cargoes of eastern lake iron have arrived from Buffalo, in addition to a mixed shipment of iron and finished steel from eastern steelworks, by vessel to the Milwaukee district. Spot and future sales of northern iron are on a basis of $20, Chicago.

**St. Louis, May 7.**—Melters are well supplied for second quarter and pig iron purchasing has dwindled to small proportions. While blast furnace interests have comfortable backlogs, they will have plenty of iron to dispose of toward the end of June. The tone of the market continues firm. Shipments are maintained at the recent high rate, and consumption at the end of April had reached a peak for the year. Sales reported in the past week totaled 3000 tons.

**Birmingham, Ala., May 7.**—The pig iron market is quiet. It is reported No. 2 foundry iron is being sold at $15, base, Birmingham, outside the local territory. One or two blast furnaces have been changed to basic from foundry.

**Philadelphia, May 7.**—Recent sales of low phosphorus pig iron total 25,000 tons, including eastern and mid-

*(Concluded on Page 1296*

## Pig Iron Prices

**Per Gross Ton**

| | |
|---|---|
| Bessemer, valley furnace | $18.50 to 19.00 |
| Bessemer, del. Pittsburgh | 20.26 to 20.76 |
| Basic, valley furnace | 18.00 to 18.50 |
| Basic, del. Pittsburgh | 19.76 to 20.26 |
| Basic, Buffalo furnace | 17.50 |
| Basic, del. eastern Pa. | 20.65 to 21.00 |
| Malleable, valley furnace | 18.50 to 19.00 |
| Malleable, del. Pittsburgh | 20.26 to 20.76 |
| Malleable, Cleve. fur. for local del. | 19.00 |
| Malleable, Chicago furnace | 20.00 |
| Malleable, Buffalo furnace | 20.00 |
| Malleable, del. eastern Pa. | 22.76 to 24.40 |
| Malleable, Granite City fur. | 20.50 |
| No. 1 foundry, Chicago furnace | 20.50 |
| No. 1X, Eastern del., Phila. | 23.26 |
| No. 1X, Buffalo furnace | 21.00 |
| No. 2 foundry, valley furnace | 18.50 |
| No. 2 foundry, del. Pittsburgh | 20.26 |
| No. 2 plain, Buffalo furnace | 19.50 |
| No. 2 foundry, Chicago furnace | 20.00 |
| No. 2 fdy. Cleve. fur. for local del. | 19.00 |
| No. 2 plain, del., Phila. | 22.26 |
| No. 2 plain, Virginia furnace | 20.75 |
| No. 2 plain, Buffalo, del. Boston | 23.41 to 23.91 |
| No. 2 plain, N. J., tidewater | 22.28 to 22.78 |
| No. 2 Alabama, Bir. base | 15.00 to 15.50 |
| No. 2 Tenn., Birmingham base | 15.50 |
| No. 2 Tenn., del. Cincinnati | 19.19 |
| No. 2 Alabama, del. Cincinnati | 18.69 to 19.19 |
| No. 2 Alabama, del. Chicago | 21.51 |
| No. 2 Alabama, del., Cleveland | 21.76 |
| No. 2 Alabama, del. St. Louis | 19.92 |
| No. 2X, east N. J., tidewater | 22.78 to 23.28 |
| No. 2X, eastern, del. Phila. | 22.76 |
| No. 2X, foundry, Buffalo furnace | 20.00 |
| No. 2X, Buffalo, del. Boston | 23.91 to 24.41 |
| No. 2X, Virginia furnace | 20.25 to 20.75 |
| Gray forge, val., del. Pittsburgh | 19.76 |
| Low phos., standard, valley | 27.00 |
| Low phos., standard, Phila. | 24.26 to 24.76 |
| Low phos., copper bearing fur. | 23.00 to 23.50 |
| Charcoal, Superior, del., Chicago | 27.04 |

**CANADIAN PRICES**

| | |
|---|---|
| No. 2 foundry, del. Toronto | 24.10 to 24.60 |
| No. 2 foundry, del. Montreal | 25.50 to 26.00 |
| Malleable, del. Toronto | 24.10 to 24.60 |
| Malleable, del. Montreal | 25.50 to 26.00 |
| Basic, del. Montreal | 24.50 to 25.00 |

Silvery iron, Jackson county, O., furnaces, in per cents: 5—$23 to $24; 7—$25 to $26; 8—$26 to $27; 9—$27 to $28; 10—$29 to $30; 11—$31 to $32; 12—$33 to $34; 13—$35 to $36.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$31 to $32; 11—$33 to $34; 12—$35 to $36; 13—$37 to $38; 15—$41.50 to $42.50; 16—$43 to $44.

# The Market Section

## Coke

**Shipments Holding Up—Additional Ovens Being Lighted in Connellsville Region**

SHIPMENTS of furnace and foundry coke are well maintained, though the Connellsville market for these grades is quieter, and prices are unchanged. The leading interest is lighting additional ovens in the Connellsville region. New orders for by-product coke are smaller than anticipated, though shipments are large. The melt in the eastern district has declined slightly.

**Pittsburgh, May 7.**—The market for beehive coke is quiet, and prices generally are steady. Production by merchant ovens continues closely regulated to contract requirements, and little surplus fuel is available. New business is limited to a few carloads. The foundry coke market also is quieter, though shipments on contracts are well maintained. The H. C. Frick Coke Co. has ordered additional ovens lighted, making a total of 2200 operating in the Connellsville region. Although part of this output reflects heavy pig iron production, repairs at the Clairton by-products plant is understood to necessitate the shipment of substantial supplementary tonnages.

Production of coke in the Connellsville region for the week ended April 27 was 79,341 tons compared with 71,455 tons the preceding week, according to the *Connellsville Courier*.

**New York, May 7.**—Shipments continue to go forward in large volume against first half foundry coke contracts. New spot buying, however, continues smaller than sellers had anticipated in view of the fact that a few foundries are not under contracts. By-product foundry coke continues to be quoted at $11, delivered, most New England consuming points, $9 to $9.40 delivered at Newark, N. J., and $9 delivered to Philadelphia consuming points. Beehive foundry coke continues at $4.85, Latrobe, Pa., and $3.75 to $4, Connellsville, Pa.

**Cincinnati, May 7.**—Coke in foundry sizes continues to move on current contracts, but new business is quiet. Prices continue firm.

**St. Louis, May 7.**—By-product coke is in good, steady demand. Shipments have maintained the high levels which have marked the past two months. Prices are steady.

**Birmingham, Ala., May 7.**—Production and shipments of coke are steady, the make being near capacity. Prices are unchanged, independent producers quoting $5, base, for the foundry grade. Many melters in the Middle West are taking Alabama coke.

### Coke Prices

**Prices per Net Ton**

| | |
|---|---|
| **Beehive Ovens** | |
| Connellsville furnace | $2.75 to 2.85 |
| Connellsville foundry | 3.75 to 4.85 |
| New River foundry | 6.00 to 6.50 |
| Wise county foundry | 4.25 to 5.00 |
| Wise county furnace | 3.50 to 4.75 |
| **By-Product Foundry** | |
| Newark, N. J., del. | 9.00 to 9.40 |
| Chicago ovens | 8.00 |
| New England del. | 11.00 |
| St. Louis del. | 9.00 |
| Birmingham, ovens | 5.00 |
| Indianapolis, del. | 8.25 |
| Ashland, Ky., ovens, Connell. basis | 6.50 |
| Portsmouth, O., ovens, Connell. basis | 6.50 |
| Buffalo, ovens | 8.75 |
| Detroit, ovens | 9.00 |
| Philadelphia, del. | 9.00 |

## Ferroalloys

**Some Spiegeleisen Contracts Renewed —Consumption Heavy**

**Pittsburgh, May 7.**—Some spiegeleisen contracts have been renewed at prevailing prices although current obligations do not expire until the end of June. Contracting for ferromanganese generally was done on a 12-month basis at the beginning of this year. Prices in the spot market continue $34 for spiegeleisen and $109.79, delivered Pittsburgh, for ferromanganese, with quantity differentials applying on large lots of the former. What little spot business is being placed, however, is confined to an occasional carload order from small consumers. Shipments against contracts show little if any diminution from the active April and March rates. Fluorspar is more active both in new business and shipments. A barge load of fluorspar arrived here last week via the Ohio river from Illinois mines.

**New York, May 7.**—The spiegeleisen market during the past week has been featured by sales of an unusual number of spot carloads of this metal. On carload business the price continues firm at $34 furnace for the 19 to 21 per cent grade. Consumption of ferromanganese continues of record proportions and indications are that it will suffer no appreciable diminution in May, although it is believed that the tonnage will show a slight falling off in June. New sales are restricted to a few carload lots for spot shipment, these bringing the regular price of $105, duty paid, tidewater.

Tungsten continues extremely strong but the smallness of sales makes exact quotations difficult. Scheelite lately sold at $16.50 a short ton unit, and some asking prices run much higher. Nothing can be had earlier than autumn delivery. Wolframite is quoted around $16 a short ton unit, duty paid, but is almost unobtainable for several months, while for shipment from China in the autumn some ore is offered around $14 to $15 a unit, duty paid.

## Bolts, Nuts, Rivets

**Specifications Heavier, with Operations at Unchanged Rate**

NUT AND BOLT PRICES, PAGE 1282

**Pittsburgh, May 7.**—Specifications for bolts, nuts and rivets are heavier than a month ago when new buying declined after the closing of first quarter contracts. April shipments showed an improvement over May. Prices are steady at 3.10c, Pittsburgh, for large rivets and 60 to 70 off for bolts and nuts. Operations are unchanged at 65 to 75 per cent.

**Cleveland, May 7.**—Nut and bolt orders are fairly large and makers are operating at 75 to 80 per cent. Prices are firm and unchanged. Rivet makers continue to get some business at 3.10c, Pittsburgh, despite accumulations here and there at the lower figures prevailing last quarter, which now are well dissipated.

**Chicago, May 7.**—Consumers of bolts and nuts are specifying steadily against second quarter contracts. While demand for large structural rivets for building is much restricted, industrial users of rivets are specifying at their usual rate for the season. Mill orders now are about equivalent to a year ago. Automotive business is steady and heavier specifications from the implement manufacturers are expected after June 1. Quotations for bolts and nuts are steady at 60 to 70 off.

---

Standard Screw company, with plants at Detroit, Chicago and Hartford, Conn., showed an increase in net profit to $1,042,448 from $577,758 in 1927.

### Ferroalloy Prices

(In dollars, except ferrochrome)

| | |
|---|---|
| Ferromanganese, 78 to 82 per cent, tidewater, duty paid | $105.00 |
| Ferromanganese, del. Pittsburgh | 109.79 |
| Spiegeleisen, 19 to 21 per cent, domestic furnace, spot† | 34.00 |
| *Perrosilicon, 50 per cent, freight allowed, carloads | 83.50 |
| *Do, less carload | 88.50 |
| Do., 75 per cent | 130.00 to 150.00 |
| Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del. | 11.00 |
| Do., for spot delivery | 11.50 |
| Ferrotungsten, stand., lb. cont. | 1.30 to 1.35 |
| Ferrovanadium, 30-40 per cent, per lb., contained, on analysis | 3.15 to 3.65 |
| Ferro-carbon-titanium carload, producer's plant, net ton | 160.00 |
| Do., one ton to carload | 170.00 |
| Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent) | 91.00 |
| Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent) | 122.50 |

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

# The Market Section

## Scrap

**Further Slight Declines as Supply Continues Heavy—Melt Holds at High Level—Prices Softer**

CONTINUED large receipts from producers and resistance by consumers has brought further slight declines in several grades of scrap in various centers. For most part the loss is about 25 cents per ton. Absorption of tonnages continues to keep pace with offerings under concessions.

**Chicago, May 7.**—Another decline of 25 cents in heavy melting steel has followed sale of several thousand tons of closely inspected material to a leading steelworks consumer at $16. The range now is $15.50 to $16. Steelmaking grades are further depressed, while foundry grades and specialties are maintaining firmness. Despite weakening tendencies, factors of firmness are seen in the slow movement of scrap from plants in which material is produced and the high prices paid for railroad scrap. Rerolling rails have been sold by the Illinois Central at $17.75 on tracks, while heavy melting steel in that offering was taken by dealers as high as $16.60, delivered. Car shops have not begun to turn out scrap in such quantities as had been expected. Unfilled orders of dealers are heavy and consumption is well maintained. A steelworks consumer in the Gary district has turned down heavy melting steel at $15.75. Borings have dropped off 25 cents and most dealers are now quoting as low as $10.50, with little interest from buyers.

**Boston, May 7.**—The market for iron and steel scrap has developed

# Iron and Steel Scrap Prices

**Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown**

### Steel Works Scrap

**HEAVY MELTING STEEL**

| | |
|---|---|
| Birmingham | 12.00 to 12.50 |
| Boston, dealers | 11.75 to 12.00 |
| Boston, No. 2 | 10.00 to 10.50 |
| Buffalo, No. 1 | 17.00 to 17.50 |
| Buffalo, No. 2 | 14.50 to 14.75 |
| Chicago | 15.50 to 16.00 |
| Cincinnati, deal. | 13.00 to 13.50 |
| Cleveland, No. 1 | 15.50 to 16.00 |
| Cleveland, No. 2 | 15.00 to 15.50 |
| Buffalo, No. 1 | 17.00 to 17.50 |
| Detroit, No. 2 | 12.25 to 12.75 |
| East Pa., del. mill | 16.50 to 17.00 |
| N. Y., deal., R. R. | 12.50 to 13.25 |
| N. Y., deal. yd. | 8.25 to 9.50 |
| Pittsburgh, No. 1 | 18.00 to 18.50 |
| Pittsburgh, No. 2 | 16.00 to 16.50 |
| St. Louis, No. 1 | 14.00 to 14.25 |
| Valleys, No. 1 | 17.50 to 18.00 |

**COMPRESSED SHEETS**

| | |
|---|---|
| Buffalo (dealers) | 14.50 to 14.75 |
| Chicago | 13.75 to 14.25 |
| Cleveland | 15.00 to 15.50 |
| Detroit | 14.00 to 14.25 |
| E. Pa. new mat. | 15.00 |
| Pittsburgh | 17.75 to 18.25 |
| Valleys | 18.00 to 18.25 |

**BUNDLED SHEETS**

| | |
|---|---|
| Buffalo | 12.75 to 13.25 |
| Cincinnati, deal. | 11.00 to 11.50 |
| Cleveland | 13.00 to 13.50 |
| Eastern Pa. | 11.50 to 12.00 |
| Pittsburgh | 16.00 to 16.50 |
| St. Louis | 10.00 to 10.50 |

**SHEET CLIPPINGS LOOSE**

| | |
|---|---|
| Chicago | 9.00 to 9.50 |
| Cincinnati | 9.50 to 10.00 |
| Detroit | 9.25 to 9.75 |
| St. Louis | 10.00 to 10.50 |

**STEEL RAILS, SHORT**

| | |
|---|---|
| Birmingham | 14.00 to 14.50 |
| Boston | 11.25 to 12.25 |
| Buffalo | 19.50 to 20.00 |
| Chicago (3 feet) | 19.00 to 19.50 |
| Chicago, 2 ft. and under | 19.50 to 20.00 |
| Cincinnati, deal. | 19.00 to 19.50 |
| Detroit | 17.00 to 17.50 |
| Pittsburgh (3 ft.) | 20.00 to 21.00 |
| Pittsburgh, 2 ft. and under | 20.50 to 21.50 |
| St. Louis | 16.50 to 17.00 |

**STOVE PLATE**

| | |
|---|---|
| Birmingham | 12.50 to 13.00 |
| Boston consumers | 11.50 to 12.00 |
| Buffalo | 13.25 to 13.75 |
| Chicago, net | 12.75 to 13.25 |
| Cinn., deal., net | 9.25 to 9.75 |
| Detroit, net | 9.00 to 9.50 |
| Eastern Pa. | 12.50 to 13.00 |
| N. Y. deal, mill | 8.50 to 8.75 |
| Pittsburgh | 12.50 to 13.00 |
| St. Louis | 13.25 to 13.75 |

**COUPLERS, SPRINGS**

| | |
|---|---|
| Buffalo | 19.50 to 20.00 |
| Chicago | 17.00 to 17.50 |
| Eastern Pa. | 20.50 to 21.50 |
| Pittsburgh | 21.00 to 21.50 |
| St. Louis | 15.00 to 15.50 |

**ANGLE BARS—STEEL**

| | |
|---|---|
| Chicago | 17.50 to 18.00 |
| St. Louis | 14.50 to 15.00 |

**LOW PHOSPHORUS**

| | |
|---|---|
| Buffalo, billets and bloom crops | 19.50 to 20.50 |
| Eastern Pa. | 22.00 to 23.00 |
| Pitts. billet and bloom crops | 22.50 to 23.00 |
| Cleve. billet and bloom crops | 17.50 to 18.00 |

**FROGS, SWITCHES, GUARDS**

| | |
|---|---|
| Chicago | 16.75 to 17.25 |
| St. Louis | 15.00 to 15.50 |

**SHOVELING STEEL**

| | |
|---|---|
| Chicago | 15.50 to 16.00 |
| Cleveland | 11.75 to 12.00 |
| Detroit | 10.75 to 11.00 |
| Pittsburgh | 18.00 to 18.50 |
| St. Louis | 14.00 to 14.25 |

### Iron Mill Scrap

**RAILROAD WROUGHT**

| | |
|---|---|
| Birmingham | 10.00 to 11.00 |
| Boston, dealers | 11.25 to 12.00 |
| Buffalo, No. 1 | 13.50 to 14.00 |
| Buffalo, No. 2 | 16.00 to 17.00 |
| Chicago, No. 1 | 16.50 to 17.10 |
| Chicago, No. 2 | 15.50 to 16.00 |
| Cinn., No. 2 | 13.00 to 13.50 |
| Eastern Pa. | 16.00 to 16.50 |
| N. Y., No. 1 deal. | 12.00 to 12.50 |
| Pittsburgh, No. 2 | 18.00 to 18.50 |
| St. Louis, No. 1 | 13.50 to 14.00 |
| St. Louis, No. 2 | 13.50 to 14.00 |

**SPECIFICATION PIPE**

| | |
|---|---|
| Boston | 10.50 to 11.00 |
| Eastern Pa. | 15.50 to 16.00 |
| New York, deal. | 11.25 |

**BUSHELING**

| | |
|---|---|
| Buffalo, No. 1 | 14.50 to 14.75 |
| Chicago, No. 1 | 13.50 to 14.00 |
| Cinn., No. 1 deal | 11.00 to 11.25 |
| Cinn. No. 2 | 8.00 |
| Cleveland, No. 1 | 13.00 to 13.50 |
| Cleveland, No. 2 | 11.25 to 11.50 |
| Detroit, No. 1 | 12.50 to 13.00 |
| St. Louis, No. 1 | 10.00 to 10.50 |

**MACHINE SHOP TURNINGS**

| | |
|---|---|
| Birmingham | 7.00 to 8.00 |
| Boston | 6.75 to 7.00 |
| Buffalo | 7.75 to 8.00 |
| Chicago | 9.00 to 9.50 |
| Cincinnati, deal. | 8.75 to 9.00 |
| Cleveland | 9.50 to 10.00 |
| Detroit | 7.25 to 7.50 |
| Eastern Pa. | 11.50 |
| New York, deal | 8.00 |
| Pittsburgh | 11.00 to 11.50 |
| St. Louis | 8.00 to 8.50 |
| Valleys | 11.50 to 12.00 |

**MIXED BORINGS, TURNINGS**
**For blast furnace use**

| | |
|---|---|
| Boston, dealers | 6.00 to 6.25 |
| Buffalo | 11.50 to 12.00 |
| Cincinnati, deal. | 9.25 to 9.50 |
| Cleveland | 11.25 to 11.50 |
| Detroit | 9.00 to 9.25 |
| Eastern Pa. | 10.50 to 11.00 |
| New York, deal. | 7.00 to 7.25 |
| Pittsburgh | 11.50 to 12.50 |

**CAST IRON BORINGS**

| | |
|---|---|
| Birmingham, chem. | 13.00 to 13.50 |
| Birmingham, plain | 7.00 to 8.00 |
| Boston chem. | 10.00 to 10.25 |
| Boston, dealers | 6.50 to 6.75 |
| Buffalo | 11.50 to 12.00 |
| Chicago | 10.00 to 10.50 |
| Cincinnati, deal. | 9.25 to 9.50 |
| Cleveland | 11.25 to 11.50 |
| Detroit | 9.00 to 9.25 |
| Eastern Pa. | 11.00 to 11.50 |
| Eastern Pa., chem. | 14.50 to 15.00 |
| New York, deal. | 7.25 to 7.75 |
| Pittsburgh | 11.50 to 12.50 |
| St. Louis | 9.50 to 10.00 |

**PIPE AND FLUES**

| | |
|---|---|
| Cincinnati, deal. | 9.00 to 9.50 |

**RAILROAD GRATE BARS**

| | |
|---|---|
| Buffalo | 13.00 to 13.50 |
| Chicago, net | 12.50 to 13.00 |
| Cincinnati | 10.00 to 10.50 |
| Eastern Pa. | 12.50 to 13.00 |
| New York, deal. | 8.75 to 9.75 |
| St. Louis | 12.50 to 13.00 |

**FORGE FLASHINGS**

| | |
|---|---|
| Boston, dealers | 9.50 to 10.50 |
| Buffalo | 13.75 to 14.25 |
| Chicago | 10.50 to 11.00 |
| Cleve. over 10 in. | 14.00 to 14.50 |
| Detroit | 12.00 to 12.50 |
| Pittsburgh (light) | 15.00 to 15.50 |

**FORGE SCRAP**

| | |
|---|---|
| Boston, dealers | 9.00 to 9.50 |
| Chicago | 18.50 to 19.00 |
| Eastern Pa. | 14.00 to 14.50 |

**ARCH BARS AND TRANSOMS**

| | |
|---|---|
| Chicago, net | 21.50 to 22.00 |
| St. Louis | 21.50 to 22.00 |

### Iron, Steel Works Scrap

**AXLE TURNINGS**

| | |
|---|---|
| Boston, deal | 6.75 to 7.00 |
| Buffalo | 14.50 to 15.00 |
| Chicago | 13.00 to 13.50 |
| Cleveland | 12.50 to 13.00 |
| Eastern Pa. | 15.00 |
| Pittsburgh | 16.00 to 17.00 |
| St. Louis | 10.00 to 10.50 |

**STEEL CAR AXLES**

| | |
|---|---|
| Birmingham | 17.00 to 18.00 |
| Boston, ship point | 17.00 to 17.50 |
| Buffalo | 19.50 to 20.00 |
| Chicago | 19.05 to 19.60 |
| Eastern Pa. | 22.75 to 23.00 |
| Pittsburgh | 21.50 to 22.00 |
| St. Louis | 19.00 to 19.50 |

**SHAFTING**

| | |
|---|---|
| Boston, ship point | 14.00 to 14.25 |
| Chicago | 17.35 to 17.90 |
| Eastern Pa. | 19.00 to 20.00 |
| New York, deal. | 14.50 to 15.50 |
| St. Louis | 18.50 to 19.00 |

### Iron Foundry Scrap

**CAR WHEELS**

| | |
|---|---|
| Birmingham, iron | 11.00 to 12.00 |
| Boston, iron | 14.00 to 14.50 |
| Buffalo, iron | 14.00 to 14.50 |
| Buffalo, steel | 19.50 to 20.00 |
| Chicago, iron | 14.50 to 15.00 |
| Chi., rolled steel | 19.00 to 19.50 |
| Cincinnati | 12.50 to 13.00 |
| Eastern Pa. cast | 16.50 |
| Eastern Pa., rolled | 20.50 to 21.50 |
| N. Y., iron, deal | 12.00 to 12.50 |
| Pittsburgh, iron | 16.00 to 16.50 |
| Pittsburgh, steel | 21.00 to 21.50 |
| St. Louis, iron | 14.75 to 15.25 |
| St. Louis, steel | 17.00 to 17.50 |

**No. 1 CAST SCRAP**

| | |
|---|---|
| Birmingham, cup | 13.00 to 14.00 |
| Buffalo | 16.00 to 16.50 |
| Boston, textile | 16.50 to 17.00 |
| Chicago, mach. | 17.35 to 17.90 |
| Chicago, railroad | 16.80 to 17.35 |
| Chicago, agri. | 16.25 to 16.80 |
| Cincinnati, mach. cupolas, gross | 19.50 to 20.00 |
| Cleveland, cupola | 16.50 to 17.00 |
| Detroit, net | 13.00 to 13.50 |
| East, Pa., cupola | 16.00 to 17.00 |
| N. Y., cup., deal. | 13.00 to 13.50 |
| N. Y., del. local foundries | 17.00 |
| Pittsburgh, cupola | 15.00 to 16.00 |
| San. Fran., del. | 13.50 to 14.00 |
| Seattle | 15.50 to 16.00 |
| St. L. No. 1 mach. | 15.25 to 15.75 |
| St. Louis, No. 1 | 14.50 to 15.00 |
| Valleys | 16.50 to 17.00 |

**HEAVY CAST**

| | |
|---|---|
| Boston | 10.50 to 11.00 |
| Buffalo, breakable | 13.00 to 13.50 |
| Cleve., breakable | 12.50 to 12.75 |
| Detroit, auto, net | 15.00 to 16.00 |
| Detroit, breakable | 9.50 to 10.00 |
| Eastern, Pa. | 15.50 to 16.00 |
| New York, deal. | 11.50 to 12.00 |
| Pittsburgh | 13.00 to 14.00 |

**MALLEABLE**

| | |
|---|---|
| Boston, railroad | 16.50 to 17.00 |
| Buffalo | 19.00 to 19.50 |
| Chicago, agri. | 16.00 to 16.50 |
| Chicago, railroad | 19.00 to 19.50 |
| Cinn., R. R., deal | 15.50 to 16.00 |
| Cinn., agri., deal | 14.25 to 14.75 |
| Cleveland, rail | 16.00 to 16.50 |
| Detroit, auto | 15.00 to 15.25 |
| St. Louis, rail | 16.00 to 16.50 |

### Miscellaneous Scrap

**RAILS FOR ROLLING**
**5 feet and over**

| | |
|---|---|
| Birmingham | 14.00 to 15.00 |
| Boston, dealers | 11.75 to 12.00 |
| Rails scrap, Boston | 10.50 to 12.00 |
| Skeleton, Boston | 9.00 to 10.00 |
| Buffalo | 16.50 to 17.50 |
| Chicago | 17.50 to 18.00 |
| Eastern Pa. | 18.00 to 18.50 |
| New York | 13.00 to 14.00 |
| St. Louis | 15.50 to 16.00 |

**LOCOMOTIVE TIRES**

| | |
|---|---|
| Chicago, cut | 19.00 to 19.50 |
| St. Louis, No. 1 | 16.00 to 16.50 |

**LOW PHOS. PUNCHINGS**

| | |
|---|---|
| Chicago | 18.00 to 18.50 |
| Pittsburgh | 20.00 to 21.00 |

into a waiting affair. Mills seem uninterested except at recessions and then only in a limited way. There have been but few price changes. Scrap rails are easier on the inside, which is true of pipe, rails for rolling and chemical borings. Skeleton also showed a slightly lower range, but most prices held firm.

**New York, May 7.**—Iron and steel scrap is featured by several downward revisions. On some grades certain dealers continue to offer prices noted last week, while others are reducing their buying prices considerably. A Coatesville, Pa., consumer has closed on possibly 1500 tons of heavy melting steel at $17 a ton, delivered. Bethlehem Steel Corp. has contracted for 5000 tons of structural scrap, to be obtained from the dismantling of buildings at and adjacent to No. 1 Wall street, at $13.25, delivered.

**Buffalo, May 7.**—Heavy melting steel has been re-established by purchase of a railroad list at $17.60, delivered Buffalo district. Dealers are offering $17.25 for selected No. 1 heavy melting steel, which is 25 cents less than average April offers. Some No. 2 has been bought by dealers at $14.50, it is understood, also a 25 cent reduction. Stove plate, No. 1 cast and blast furnace material are down 25 cents from recent peak prices.

**Pittsburgh, May 7.**—Some steelworks grades of scrap show further weakness although No. 1 heavy melting steel is unchanged from $18 to $18.50. Tonnages have been sold recently at both prices, though demand is not brisk. No. 2 heavy melting steel and blast furnace grades are off 25 cents. Low phosphorus scrap is weaker. Offerings are larger but not heavy. Dealers generally are unable to buy heavy melting steel at less than $17.75. Shipments on contract are steady.

**Cleveland, May 7.**—Purchases of heavy melting steel by one mill were well scattered and totaled only a few thousand tons. Another user of open-hearth grades is rigidly regulating shipments. Quotations remain the same as a week ago. A slight weakness is apparent in Youngstown territory where dealers are not offering quite as much. No. 1 heavy melting steel is now quoted there at $17.50 to $18 instead of $18 to $18.25.

**Cincinnati, May 7.**—Scrap dealers are staying under cover and are not buying more than enough for current orders. The market is weaker. Cast iron borings and mixed borings and turnings receded from the maximum of $9.75 to $9.50.

**St. Louis, May 7.**—Considerable buying of scrap, particularly steel grades, has been in progress. More materials has been coming in than for a long while, from railroads and country shipping points. Mills are well supplied but have taken advantage of the recent drop in prices and distress scrap.

**Birmingham, Ala., May 7.**—The southern market for iron and steel scrap is slow. Purchasing is light. Heavy melting steel quoted at $12.50, best quality, and one large consumer is getting the regular grade at $10.50.

## Canadian Scrap

**Dealers' Buying Prices**

**MONTREAL**
**Per Gross Ton**

| | |
|---|---|
| Iron axles | $22.00 |
| Steel axles | 20.00 |
| Car wheels | 16.00 |
| Stove plate | 13.00 |
| Wrought pipe | 6.00 |
| Turnings | 6.50 |
| Heavy melting steel | 8.00 |

**TORONTO**

| | |
|---|---|
| Steel axles | 15.00 |
| Iron axles | 17.00 |
| Heavy melting steel | 9.50 |
| Turnings | 7.50 |
| No. 1 mach. cast (net) | 16.00 |
| Malleable (net) | 14.00 |

**Philadelphia, May 7.**—Higher scrap prices are recorded in the low phosphorus group as well as in blast furnace scrap. Heavy cast is easier. Heavy melting steel is unchanged but easy.

**Toronto, Ont., May 7.**—A few minor price changes were made by Toronto scrap dealers during the week. Improved demand is reported for stove plate and dealers are making stronger bids for this and have increased their buying price. Malleable scrap is also in good demand with dealers now offering $15 per net ton, an increase of $1 over the former level. Dealers offer $10 per gross ton for heavy melting steel against the former price of $9.50, delivered Toronto.

## Semifinished Steel

**Price Advance Becomes More General —Material Scarce**

SEMIFINISHED STEEL PRICES, PAGE 1282

**Youngstown, O., May 7.**—Two important makers of semifinished steel yesterday announced an advance of $1 a ton in the price of billets, sheet bars and slabs to $36, Pittsburgh and Youngstown. These three commodities thus for the first time in many years are selling upon the same price basis. The shortage of semifinished steel continues, this despite independent open-hearth facilities being operated at 96 per cent of capacity this week, a gain from 94 per cent last week. Bessemer capacity is being expanded steadily each week by important interests to help out. Wire rods still are quoted $42, Pittsburgh and Cleveland.

**Cleveland, May 7.**—Supplies of semifinished steel continue scarce. Though inquiries for various tonnages are being received here almost daily, the leading local producer has shipping instructions from regular customers for its full output for the next 27 days. These shipments are being made at $35, base, Cleveland or Youngstown, for sheet bars, and $34 for billets and slabs.

**Chicago, May 7.**—No relief has been obtained in the tight semifinished situation. Purchases of commercial and rerolling billets, as well as forging billets and slabs are being made in eastern territory by consumers in this district. Present quotations on commercial billets, 4 x 4-inch base, are nominal at a maximum of $37, Chicago. Sheet bars likewise are $37. Wire rods are reported steady on the basis of $42, Pittsburgh-Cleveland, or $43, Chicago.

**New York, May 7.**—Several moderate size tonnages of billets have been sold here at the $2 advance. The prices obtained are $36, base. Pittsburgh, for open-hearth rerollers and $41 for open-hearth forging quality.

**Pittsburgh, May 7.**—Semifinished material continues quiet from the standpoint of buying, due entirely to the scarcity of supplies. The market is strong, however, and what occasional transactions are noted are at full quoted prices of $36 for rerolling billets, slabs and sheet bars. Consumers are forced to balance production schedules carefully to maintain operations at the highest possible level and in some instances are handicapped by the lack of additional supplies of semifinished steel. Producers generally are taking care only of regular customers wherever possible an additional material and are out of the market on all outside orders. Wire rods are firm at $42.

## Rate Is 98 at Chicago

Chicago, May 7.—Steel mills in this district are maintaining operations virtually at capacity, or about 98 per cent. This rate varies slightly with the necessary repairs that must be made because of the strain of the long continued capacity operations. It is probable that E furnace of the Illinois Steel Co. may be blown in at South Chicago soon. Operations of another steelworks furnace at Joliet, which has been idle for several years, has been contemplated. Twenty-nine of the 36 steelworks furnaces in the district are active.

## Locomotive Sales Gain

Washington, May 7.—Shipments of electric and steam locomotives in April was markedly ahead of March, according to statistics gathered by the department of commerce. Monthly comparisons follow:

| Year and Month | Shipments Domestic Total | Steam | Electric | Unfilled orders Domestic Total | Steam | Electric |
|---|---|---|---|---|---|---|
| 1928 | | | | | | |
| Jan. | 47 | 22 | 23 | 222 | 161 | 38 |
| Feb. | 59 | 43 | 11 | 204 | 146 | 40 |
| March | 70 | 44 | 15 | 178 | 123 | 37 |
| April | 46 | 38 | 6 | 188 | 129 | 41 |
| Total (4 mos.) | 222 | 147 | 55 | ..... | ..... | ..... |
| April | 46 | 38 | 6 | 188 | 129 | 41 |
| May | 41 | 29 | 10 | 220 | 138 | 39 |
| June | 51 | 39 | 11 | 201 | 109 | 37 |
| July | 46 | 19 | 5 | 198 | 98 | 59 |
| Aug. | 34 | 23 | 4 | 204 | 135 | 26 |
| Sept. | 41 | 28 | 2 | 178 | 118 | 27 |
| Nov. | 35 | 20 | 1 | 152 | 104 | 31 |
| Dec. | 44 | 36 | 4 | 282 | 238 | 27 |
| (1928) | 550 | 367 | 92 | ..... | ..... | ..... |
| 1929 | | | | | | |
| Jan. | 23 | 6 | 6 | 278 | 251 | 21 |
| Feb. | 23 | 20 | 1 | 339 | 301 | 20 |
| March | 35 | 31 | 4 | 488 | 419 | 24 |
| April | 61 | 57 | 2 | 495 | 419 | 24 |
| Total (4 mos.) | 142 | 114 | 13 | ..... | ..... | ..... |

# Bars

**Spot Buying Adds to Mill Tonnage—Chicago Mills Far Behind in Delivery to Customers**

IN SPITE of somewhat slower specifications for steel bars, mills are unable to catch up with demands of consumers. At Chicago deliveries are 12 to 16 weeks deferred and at Pittsburgh three to four weeks. Chicago mills will not accept third quarter contracts but are obligated well into that period on present tonnage. Specifications are close to shipments.

BAR PRICES, PAGE 1281

**Chicago, May 7.**—More tonnage has been added to books of western bar mills through spot orders, but mills refuse to take on obligations for shipment during third quarter. Mills are obligated through July and a part of August on present commitments, and are unable to offer accommodations on current rolling schedules before July 1. Finishing mills are seeking to prevent pyramiding of orders. No relief has been obtained in bar mill deliveries, as occasional steelworks repairs tend to set back shipments still further. Deliveries are 12 to 16 weeks for most sizes. Finished steel sales, including hot rolled strip and track fastenings, made an unusually high mark in view of the sold-up condition for second quarter. Sales are nearly even with shipments, and specifications are far in excess. Automotive schedules for this month show no appreciable net decline, despite lighter orders from some producers of cars. Railroad car specifications form a heavy addition to mill orders. Farm implement and tractor specifications are unchecked.

Soft steel bars are quoted at 2.05c to 2.15c, Chicago. The 2.10c quotation is more common as the maximum price for smaller miscellaneous tonnages.

**New York, May 7.**—Steel bar specifications are not up to the March level, but are in excess of what was expected in view of the extent to which forward requirements were anticipated by the specifications in that month. There are many urgent requests for delivery and mills, with schedules filled for the next two to four weeks, are having difficulty in satisfying all requests. Prices continue firm at 1.95c to 2.05c base Pittsburgh.

**Philadelphia, May 7.**—Steel bar consumption continues unabated and specifications against second quarter contract are brisk. Mills generally are scheduled well ahead and are unable to promise shipment under three to four weeks. Prices are firm at 1.95c to 2.05c, base, Pittsburgh.

**Pittsburgh, May 7.**—Late April and early May witnessed a revival in specifications for hot-rolled merchant bars following the slump in demand after the closing out of first quarter contracts in March. Although total April tonnage was below March the decrease was smaller than had been anticipated and recent specifications are holding close to shipments. Some mills have improved on delivery but producers still are asking two to four weeks, according to size. Demand still is well diversified with only a moderate decrease in commitments of automotive interests. The market is firm at 1.95c, Pittsburgh.

**Cleveland, May 7.**—Producers of merchant steel bars are catching up about a week on their backlogs. Specifications show a slight tendency to slacken, due mostly to shrinkage in automotive demand for material to reach the finished stage in June. Shipments this month are apparently as heavy as in April. Prices are unchanged, 1.95c to 2.00c, Pittsburgh. Some outside mills have quoted 1.95c, Cleveland base, where they have been able to compete with local mills.

## Newton Opens Branch Office in Indiana

Youngstown, O., May 7.—The Newton Steel Co. has established a district sales office at Indianapolis in the Illinois building, 17 West Market street. It will be in charge of A. H. Adams, formerly in the Chicago sales offices of the Newton company. The Indianapolis office will be opened this week.

The American Brake Shoe & Foundry Co. has moved its New York City offices from 30 Church street to the New York Central building, 230 Park avenue.

# Plates

**Large Tonnages Ordered for Car Equipment—Oil Tank Inquiries Also Increase—Prices Are Firm**

THE plate market is featured by large additional orders from electrical equipment builders, about 30,000 of finished steel, mainly plates, being added to western mill books. Oil tank awards total 3000 tons, and new inquiries for plates for this purpose total 15,000 to 20,000 tons. Backlogs are being extended. Prices are firm.

PLATE PRICES, PAGE 1281

**New York, May 7.**—Demand for plates continues heavy and most eastern mills are behind on shipments. The Coatesville, Pa., plant of the Bethlehem Steel Co., for the first time in many years, is operating at 100 per cent of capacity. One of the eastern Pennsylvania mills, because of the congested condition of plate mills in the Chicago district, has booked 5000 to 10,000 tons of plates for early shipment to the A. O. Smith Corp., Milwaukee. The price of plates in the East continues firm at 2.05c to 2.15c, base, Coatesville, or 1.95c to 2.05c, base, Pittsburgh, depending on the location of the destination. Present information about the projected ships for the Matson line indicates that these three boats are to be placed under contract on May 9. According to report, the boats, which contain about 12,000 tons of steel each, are to be built by the Bethlehem Shipbuilding Corp. An airplane carrier for the navy, to come out later this year, will take about 10,000 to 12,000 tons of steel. Bethlehem Shipbuilding Corp. has booked two carfloats for the Atlantic Transport Lines, two carfloats for the Western Maryland railroad and 10 scows for the Arundel Corp., Baltimore. These carfloats take about 500 tons of steel each. Recently, the New York Shipbuilding Corp. booked four barges for the Erie railroad requiring about 1000 tons of steel each. Action is expected soon on a Porto Rican liner for the Atlantic, Gulf & West Indies Steamship Co., to take about 12,000 tons of steel.

**Pittsburgh, May 7.**—Plate demand continues at a more active rate than a month ago with backlogs extended slightly during the past 30 days. Unfilled business does not equal that in bars but deliveries of two to three weeks generally are required. Despite the sold-up condition of midwestern plate mills, only a comparatively small tonnage has come to Pittsburgh district producers. Railroad equipment builders are specifying more freely than was true earlier this year and barge work also is supplying a fair tonnage. The market continues firm at 1.95c, Pittsburgh.

**Chicago, May 7.**—About 30,000 tons of finished steel, largely plates, have been added to western mill books for additional car orders just awarded, and about 3000 tons of oil tankage has been ordered from the Southwest. Including about 2500 tons for

miscellaneous refinery work for the Texas Co., at Houston and Port Arthur, Tex., oil refinery plate inquiry totals 15,000 to 20,000 tons, some of which is for the Pacific coast. Car shops' specifications are approaching their peak. No relief has appeared in the tight delivery situation. It is difficult to get shipments on certain sizes of plates inside of 14 to 16 weeks, although mills are able to take care of some orders much sooner. Some of the current buying is for protection after July 1, but in general mills are refusing to take third quarter tonnage that is offered. Specifications are far in excess of the rate of shipments. Quotations are on the basis of 2.05c to 2.15c, Chicago, but 2.10c has been the maximum for recent larger tonnages.

**Philadelphia, May 7.**—Plate demand continues good, and prices firm. The Norfolk & Western is negotiating for 4000 to 5000 tons of plates, shapes and sheet bars for 500 cars. The Alaska Steamship Co. is inquiring for a boat to require about 4000 tons of steel, mainly plates. Baldwin Locomotive Works has booked 12 locomotives for Canadian National railways and one for the Bessemer & Lake Erie.

### CONTRACTS PLACED

1450 tons, for flat cars for Southern Pacific Equipment Co., San Francisco, to unknown interests.
200 tons, boiler contract by Puget Sound Machinery Depot, Seattle, to eastern producers.

### CONTRACTS PENDING

1550 tons, for flat cars for Southern Pacific Equipment Co., San Francisco, still pending.
1300 tons, pipe line East Bay Municipal Utility District, Oakland. Bids received.
1200 tons, siphon for Belle Fouche project South Dakota; Western Pipe & Steel Co. low bidder.

## Pittsburgh at 95

Pittsburgh, May 7.—Capacity production at some steelmaking plants raises the average ingot production in this district to better than 95 per cent. Open hearths where physically possible are being operated full and some gain is noted in bessemer production. Finishing operations are marked by a decrease in sheet output to slightly below 90 per cent due entirely to restriction in semifinished steel supply. Strip mill operations continue full and tin plate output is higher, at 98 to 99 per cent. Pipe mills are unchanged at 50 to 60 per cent for welded and 70 to 90 per cent for seamless material.

## J. F. McClure Dies

J. F. McClure, 47, New York representative of the Alabama Pipe & Foundry Co., Anniston, Ala., and the Lynchburg Foundry Co., Lynchburg, Va., died May 4 at Santa Fe., Mexico. He had been identified with the cast iron pipe industry for approximately 35 years.

# Pipe

**General Contract Let on 1400-mile Gas Line in South—30,000 Tons of Cast Let By Albany**

APPROXIMATELY 100,000 tons of 14 to 22-inch steel pipe are involved in another gas line in the south. The general contract has been let. Albany, N. Y., is reliably reported to have awarded 30,000 tons of 48-inch cast pipe to United States Pipe & Foundry Co. This maker is low on Milwaukee's 2786 tons. Detroit defers action on 3340 tons. Eastern prices are lower.

PIPE PRICES, PAGE 1282

**Chicago, May 7.**—Chicago department of public works took bids today on 770 tons of 24-inch pipe. Bids received for 3340 tons of 6 and 16-inch pipe for Detroit are being considered and early award is expected. Subdivision orders of one to several carloads each are fairly numerous. Municipal work has been disappointing so far this season. Chicago delivered prices are reported steady on the basis of $45.20 to $46.20, or $37 to $38, base, Birmingham.

**Boston, May 7.**—A slightly easier situation is noted in the price range on pipe. Concessions run from $3 to $4 a ton on 12-inch and larger sizes. This too is reflected in quotations on smaller sizes. Wrentham, Mass., awarded 450 tons and Cambridge, Mass., let 300 tons. R. D. Wood & Co. is the lowest bidder on 250 tons of 12-inch pipe for Providence, R. I. Wayland, Mass. is taking bids on 950 to 1000 tons of 6 and 8-inch pipe.

**New York, May 7.**—According to reliable information, Albany, N. Y., has awarded 30,000 tons of 48-inch cast pipe to the United States Pipe & Foundry Co. White Plains, N. Y., bought 130 tons, and a 300-ton lot for Yonkers, N. Y., was let to R. D. Wood & Co. at a reported figure of $36.43, delivered. Otherwise municipal lettings are few. Prices are a trifle lower.

**Pittsburgh, May 7.**—The general contract for the large pipe line from the Monroe and Richmond, La., gas fields through Birmingham, Ala., to Atlanta, Ga., has been let to Ford, Bacon & Davis Inc. by the Southern Natural Gas Corp. and awards of pipe are expected in the near future. This line will involve 1400 miles of 14 to 22-inch pipe. Further expansion is noted in demand for merchant pipe, with activity in locomotive tubes and mechanical tubing holding to its recent pace. Buying of seamless material for the oil country continues slow. Mill operations generally are unchanged.

**Cleveland, May 7.**—Orders for both buttweld and lapweld pipe are small. Jobbers appear to have accumulated good stocks and the turnover is not as rapid as a year ago. Mill supply jobbers, however, report better business than do plumbers' supply houses. Prices are firm.

**Birmingham, Ala., May 6.**—Lettings are not numerous in cast pipe but operations still are on the 80 per cent basis. Reports are that several specifications have been out and bids are to be opened this week on some round tonnages. Several plants have reduced yard stocks and shipments are equal to the production if not a little larger. The price base is the same.

### CONTRACTS PLACED

30,000 tons, 48-inch cast pipe, Albany, N. Y., reliably reported awarded to United States Pipe & Foundry Co.
900 tons, Weyerhaeuser Timber Co., Klamath Falls, Oreg., to American Cast Iron Pipe Co.
450 tons, 6-inch pipe for Wrentham, Mass., to Warren Foundry & Pipe Co.
300 tons, 6 to 12-inch for Cambridge, Mass., to R. D. Wood & Co.
300 tons, 8-inch class C pipe, Yonkers, N. Y., to R. D. Wood & Co. at a reported price of around $36.43, delivered.
195 tons, 4 and 6-inch, class 150 for Vallejo, Calif., to Pacific States Cast Iron Pipe Co.
150 tons, for Victoria, B. C., to American Cast Iron Pipe Co.
130 tons, miscellaneous sizes, White Plains, N. Y., to Warren Foundry & Pipe Co.
104 tons, 6 and 8-inch, class 250, for Alhambra, Calif., to United States Pipe & Foundry Co.
100 tons, 6 to 12-inch pipe for Coal City, Ill., to McWane Cast Iron Pipe Co.
100 tons for Puyallup, Wash., and Lewiston, Idaho, to American Cast Iron Pipe Co.

### CONTRACTS PENDING

#### CAST PIPE

2786 tons, 24 to 42-inch cast pipe for Milwaukee; United States Pipe & Foundry Co., apparent low bidder at $42.25 for plain and $52.25 for lugged, less 2 per cent 10 days. If granted entire contract, the prices are to be $41.25 and $51.25, respectively. Other bidders only bid on one or a few of the eight separate items.
950 to 1000 tons, 6 and 8-inch for Wayland, Mass. Bids called for.
678 tons, 20-inch, class B, sewer system at Klamath Falls, Oreg. Bids May 6.
480 tons, 4 to 16-inch, class B, Southgate, Calif. Bids May 7.
254 tons, 4 to 8-inch, class 150, Arroyo Grande, Calif. Bids opened.
250 tons, 12-inch pipe for Providence, R. I.; R. D. Wood & Co. low bidders.
239 tons, 2 to 18-inch, class C, improvement, Reynard Way, San Diego, Calif. Bids May 27.
226 tons, 6 and 8-inch, class B, Great Falls, Mont. Bids May 6.
188 tons, 4 to 10-inch, class C, improvement, Mt. View drive, San Diego, Calif. Bids May 20.
104 tons, 4 to 8-inch, class C, improvement Jefferson park, Daly City, Calif. Bids opened.
770 tons, 24-inch pipe for Chicago; bids May 7.

#### STEEL PIPE

1400 miles, 14 to 22-inch line pipe for line from Monroe and Richmond, La., gas fields through

Birmingham, Ala., Atlanta, Ga. General contract let by Southern Natural Gas Corp., to Ford, Bacon & Davis Inc.

## Tin Plate

**Operations Increased Slightly—Third Quarter Books Not Open**

TIN PLATE PRICES, PAGE 1282

**Pittsburgh, May 7.**—Mills continue well engaged in production of heavy tin plate tonnage placed for shipment during the remainder of the quarter but as yet have not opened books for the third period. There are indications that the recent heavy frost in California may restrict requirements of cans for the fruit pack in that section, but the exact extent of the damage is not known. Vegetable packs generally are heavy and may offset what loss is encountered on the Pacific coast. Operations have been increased further by the leading interest and production for the district now is between 97 and 100 per cent.

## Iron Ore

**April Shipments Largest for Month in 12 Years—Market Quiet**

IRON ORE PRICES, PAGE 1282

**Cleveland, May 7.**—Consumers of Lake Superior iron ore with few exceptions have covered requirements for the season, and additional business is not expected to develop for some time. April shipments amounting to 2,516,241 tons were 2,510,295 tons ahead of those of April, 1928, and were the largest for the month in the past 12 years. The table of shipments from the various ports as reported by the Lake Superior Iron Ore association follows:

| Port and Dock | Tons |
|---|---|
| ESCANABA: | |
| C. & N. W. | 314,044 |
| C. M. & St. P. | 65,092 |
| MARQUETTE: | |
| D. S. S. & A. | 26,253 |
| L. S. & I. | 221,422 |
| ASHLAND: | |
| C. & N. W. | 152,652 |
| Soo Line | 99,973 |
| SUPERIOR: | |
| Great Northern | 574,502 |
| Soo Line | 67,627 |
| Northern Pacific | 3,670 |
| DULUTH: | |
| D. M. & N. | 738,261 |
| TWO HARBORS: | |
| D. & I. R. | 257,745 |
| | 2,516,241 |

## S. S. Tuthill Resigns

New York, May 7.—Stephen S. Tuthill today resigned as secretary of the American Zinc Institute Inc., effective Aug. 1. His successor has not been named.

Edgar S. Bloom, president, Western Electric Co., has established a trust fund at the University of Pennsylvania for scholarships in the Towne scientific school, the Moore school of electrical engineering and school of fine arts.

# Sheets

**New Buying and Specifications Less Active—Pittsburgh Mill Operations Decline—Prices Firm**

SATISFACTORY deliveries still are a problem with sheet mills due to lack of sheet bars. Operations have declined to 90 per cent in the Pittsburgh district. New orders and specifications have receded slightly from April. The automotive industry is easing off on shipping instructions. American mills have taken fair-size orders for black sheets for shipment to Japan.

SHEET PRICES, PAGE 1281

**Pittsburgh, May 7.**—New buying and specifications for sheets have declined slightly since the first of the month following one of the most active months in history from the standpoint of shipments and orders. April shipments generally showed an increase over March while new buying and specifications were only slightly below the active preceding month. Current business still is heavy and in view of difficulties sheetmakers are encountering in obtaining a sufficient supply of semifinished steel, satisfactory deliveries continue a problem. Operations of mills have been restricted for this reason, production during the past week declining to around 90 per cent. Current deliveries hold to four to five weeks on the average for most material, with plate and jobbing mills receiving the brunt of current rollings. Specifications for autobody sheets are slightly less active than a month ago but are heavy in view of the deferred schedule of shipments. Sheet demand for freight cars is heavy and little decline is noted in buying by manufacturers of agricultural implements. Although some inquiry is being received for third quarter material, mills as yet have not announced prices for the period. Current business generally is going at 2.95c, Pittsburgh, for sheet mill black, 3.00c for tin mill black, 3.70c for galvanized, 2.20c for blue annealed, and 4.10c for auto body.

**Philadelphia, May 7.**—Mill schedules have receded slightly on galvanized sheets and earlier delivery can be given; otherwise the situation is unchanged, with mills filled with tonnage for most of the second quarter. Prices are unchanged.

**New York, May 7.**—Some of the sheet mills have booked a fair tonnage of new business in this territory at the new prices, 2.95c, base, Pittsburgh, for black, 3.70c for galvanized and 2.20c for blue annealed. Certain other mills are taking some business at 2.85c for black and 3.60c for galvanized. In some quarters there is a tendency to quote the higher prices as minimum, but it cannot yet be said that the lower figures have disappeared on new business. The blue annealed market continues to reflect a firmer tone, due to the extent to which producers of wide strip steel are booked ahead and also to the fact that at least a couple of mills which ordinarily solicit blue annealed business are not now in the market for this grade. In some instances blue annealed has been sold as high as 2.25c and 2.30c, base, Pittsburgh.

Fair orders for black sheets for early shipment to Japan have just been placed with American mills. These black sheets are to be galvanized in Japan.

**Youngstown, O., May 7.**—Working under continued high pressure for production and deliveries, independent sheetmakers in this district have been forced to put their mills on extra operating schedules. Resisting extreme pressure from consumers to open their books for third quarter deliveries, this because second quarter shipments now appear sure to run over a couple of weeks into third quarter, especially on autobody material, mills here find specifications piling up until shortly they must yield and name third quarter prices. Since sheet bars have gone to $36, it may not be unlikely that sheet prices may rise similarly for next quarter. Quotations here continue firm at the regular schedule, although from adjacent districts com repeated rumors of concessions on galvanized and comman black by $1 to $2 a ton.

**Cleveland, May 7.**—Because of the sold up condition of the sheet mills, commitments encroach more and more upon the third quarter period. As yet third quarter prices have not been announced but there is a growing belief present levels will apply. While some mills can still deliver black within four or five weeks, others are entirely filled up for six weeks or more; galvanized for seven or eight. Notwithstanding this situation, price discrepancies to the extent of $2 under the quoted market continue to appear here and there but the larger mills let the business slide rather than cut price.

**Chicago, May 7.**—Sheet mill order books show good backlogs and specifications are steady. Some inquiry is being received for shipment after June 30. Because of the difficulty in obtaining semifinished material, mill operations are reduced to a five-day weekly basis by one producer and it is probable that even a lighter schedule of operations may be found necessary soon. Sheet mill tonnage is lighter than other finished steel bookings. Chicago delivered sheet prices are reported well maintained on the basis of 3.10c for No. 24 black, 3.85c for No. 24 galvanized.

# Structural Shapes

**Aggregate Lettings Fall Perceptibly—Pending List Augurs Well for Balance of Month Topped By 22,500-Ton Road Job in East**

ABSENCE of large individual lettings in structural shapes causes the aggregate this week to suffer by comparison with recent weekly totals. Considerable work, however, has reached the general contractors who probaly will buy steel soon. These lots are topped by 22,500 tons for an elevated roadway in New York. Building tradesmen in New York have been awarded a wage rate increase to make their 5-day week bring them as much as the present 5½-day week, which increases building construction approximately 4 per cent. A large pending list in each section augurs well for remainder of May. Mills report that specifications are so well sustained their delivery dates now average six to eight weeks. Plain material prices are firm at 1.95c, Pittsburgh.

STRUCTURAL SHAPE PRICES, PAGE 1281

**New York, May 7.**—Structural interest is focused on the labor situation. Within the past week 150,000 workers in the building trades here have been granted a 5-day week with a 10 per cent increase in the wage rate, effective Aug. 24. The rate increase maintains the pay for five days the same as for five and a half days. The New York Structural board of trade announces a 5-day week for steel erectors at present total weekly wage, effective Aug. 24.

Recent trading has involved few outstanding tonnages, although the aggregate is fairly large. Recent concessions to the workers will add about 4 per cent to the total cost of building construction, according to one authority. Shape and fabricated material prices continue steady.

While application has been made to the war department by the North River Bridge Co., for its approval of plans for a $180,000,000 bridge at Fifty-seventh street, it appears that at best a long period of time will elapse before the project reaches the active stage.

**Boston, May 7.**—No awards are noted but several bridge contracts are pending. They include 450 tons for a bridge at Richmond, Vt., and 950 tons for two state bridges at Cambridge. Prices hold firmly.

**Pittsburgh, May 7.**—Plain structural shape producers note little change in recent steady specifications. Fabricators report an increased volume of new work to quote upon. Most work, however, lies outside of the Pittsburgh district. Activity here is restricted to small lots, but a number of larger projects are contemplated for action during the next few months. Plain material holds at 1.95c, Pittsburgh.

**Chicago, May 7.**—From 4000 to 5000 tons of structural steel inquiry has appeared in this territory and at western and northwestern points. Awards are light. Work on the 46-story building for the Illinois Bell Telephone Co. in Chicago has been postponed until autumn. Deliveries are as far removed as eight weeks on plain material, due largely to the steady specifications for the car orders now being filled. Prices to miscellaneous buyers are on the basis of 2.05c to 2.15c, Chicago, but tonnage business from preferred industries benefits by the usual differentials.

**Cleveland, May 7.**—Structural shape awards not only are fewer in number but are smaller in size, individually. Several general contracts have been let, however, which means that steel awards are a step nearer on a number of projects. Specifications against contracts are well sustained and plain material deliveries are usually six or seven weeks deferred. The 1.95c, Pittsburgh price is entirely firm. Bids on material fabricated and erected, however, continue to indicate the keen competition existent on each job that comes up.

**Milwaukee, May 7.**—Bids will be taken about May 15 on a 3-story 230 x 230-foot mechanical engineering building for the University of Wisconsin at Madison, Wis. The appropriation is $577,000. Arthur Peabody, state architectural engineer is architect. M. E. McCaffrey is secretary of the Board of University Regents which will receive the tenders.

**Toronto, Ont., May 7.**—The structural market shows great activity. Canadian parliament appropriations are large for important public works. A station at Montreal for the Canadian National railway will cost $10,000,000. Montreal has asked tenders on two bridges over the Back river to cost $2,000,000. Merchant mills are running to capacity with sufficient orders on hand to keep them actively engaged for some time.

## CONTRACTS PLACED

5000 tons, bridgework for Chicago & Northwestern railroad, to American Bridge Co., previously reported to unstated fabricator.

4000 tons, electrification work, Reading railroad, to Bethlehem Steel Co.

2500 tons, tire fabric plant at Rockmart, Ga., for Goodyear Tire & Rubber Co., Akron, O., to Virginia Bridge & Iron Co. Robert & Co. Inc., Atlanta, Ga., are the engineers.

2500 tons, Garfinkle building, Washington, to Lehigh Structural Steel Co.

2000 tons, office building, G. A. Stimson & Co. Ltd., Vancouver, to Dominion Bridge Co.

1200 tons, Lowe's theater, Broadway and 175th street, to the Hinkle Steel Construction Co.

1100 tons, technical high school, Scranton, Pa., to Kellogg Structural Steel Co.

1050 tons, for flat cars for Southern Pacific Equipment Co., San Francisco, to unstated eastern mills.

1000 tons, transmission towers, Birmingham, Ala., to Nashville Bridge Co.

925 tons, plant at Seattle, Fisher Body Co., Detroit, to Hofius Steel & Equipment Co.

800 tons, warehouse, Morton Salt Co., Chicago, to Mississippi Valley Structural Steel Co.

765 tons, unit 10 of the Fred F. French's Tudor City development, Forty-second street and East river, New York, to the Harris Structural Steel Co.

603 tons, 16-story building, 136 West Fifty-fifth street, New York, to the Harris Structural Steel Co.

600 tons, viaduct, Finleyville, Pa., for Pittsburgh & West Virginia railroad, to American Bridge Co.

550 tons, telephone exchange building, Milwaukee, to Milwaukee Bridge Co.

500 tons, plant, Pittsburgh Plate Glass Co., Mt. Vernon, O., to the Mt. Vernon Bridge Co.

500 tons, various bridges, Norfolk & Western railroad, Roanoke, Va., to Virginia Bridge & Iron Co.

462 tons, bank, 149th street and Third avenue, New York, to George A. Just Co.

450 tons, building, Chicago City Bank & Trust Co., Sixty-third and Halsted streets, Chicago, to American Bridge Co.

400 tons, St. Charles hospital addition, Port Jefferson, N. Y., to Lehigh Structural Steel Co.

390 tons, garage alterations for Bloomingdale's department store, 410 East Fifty-fourth street, New York, to Levering & Garrigues Co.

380 tons, warehouse, Overbrook, Pa., for Raub Supply Co., to Thomas Cantley.

350 tons, Willys-Knight plant addition at Los Angeles, for the Willys-Overland Co., Toledo, O., to Consolidated Steel Corp.

300 tons, Shuffleton power plant, Benton, Wash., to Hofius Steel & Equipment Co.

275 tons, intake screens, etc., Great Falls Power Co., Great Falls, Mont., to Virginia Bridge & Iron Co.

250 tons, alterations at the Hell Gate power station, to Post & McCord.

250 tons, building addition, Salvation Army, Pittsburgh, to Jones & Laughlin Steel Corp.

205 tons, miscellaneous work, to Paterson Bridge Co.

200 tons, plant and office building, La France Textiles Ltd., Woodstock, Ont., to Hamilton Bridge Co.

175 tons, apartment, Clay and Presidio streets, San Francisco, to Golden Gate Iron Works.

160 tons, theater, Rockville Center, Long Island, to George A. Just Co.

150 tons, Immaculata high school, Ottawa, Ont., to Dominion Bridge Co.

150 tons, boiler contract by Puget Sound Machinery depot, Seattle, to eastern producers.

135 tons, building, Parkersburg, W. Va., for Viscose Co., to John Eichleay Jr. Co., through J. P. Pettyjohn & Co., general contractor.

125 tons, alterations, Colonial arcade, Cleveland,

## Awards Compared

| | Tons |
|---|---|
| Awards this week | 26,020 |
| Awards last week | 71,432 |
| Awards two weeks ago | 32,435 |
| Awards this week in 1928 | 24,284 |
| Average weekly awards, 1928 | 39,082 |
| Average weekly awards, 1929 | 42,301 |
| Total awards to date, 1928 | 722,727 |
| Total awards to date, 1929 | 803,718 |

for the Schulte-United Inc., to the Pittsburgh Bridge & Iron Works, through Craig-Curtis Co., Cleveland, general contractor; Walker & Weeks, architects.

120 tons, grandstand, Goodyear Tire & Rubber Co., Akron, O., to the Massillon Bridge & Structural Co.

100 tons, telephone exchange building, Michigan Bell Telephone Co., Holland, Mich., to Whitehead & Kales Co.

100 tons, stage cover, Hollywood bowl, Los Angeles, to Consolidated Steel Corp.

100 tons, addition, Dowsley Spring & Axle Co., Chatham, Ont., to Canadian Bridge Co.

100 tons, New York state highway bridge, to the American Bridge Co.

100 tons, building, General Electric Co., New Kensington, Pa., to Jones & Laughlin Steel Corp.

## CONTRACTS PENDING

22,500 tons, west side elevated roadway, New York; tentative contract awarded James Stewart & Co., 17 East Forty-second street, New York.

2200 tons, building for the Milwaukee Gas & Light Co., Milwaukee, Wis.

1150 tons for flat cars for the Southern Pacific Equipment Co., San Francisco. Part of inquiry still pending.

1100 tons, Burnham avenue viaduct, Chicago. Bids May 15.

1000 tons, substations, Pennsylvania railroad; Lehigh Structural Steel Co., American Bridge Co., and others are low bidders on different units.

1000 tons, smelter building, at Rosita, New Mexico.

1000 tons, highway bridge, Boston.

1000 tons, electrification work for the Pennsylvania railroad in Philadelphia.

990 tons, two state bridges at Cambridge, Mass.

600 tons, locomotive repair sheds, Cleveland Union Terminal Co., Cleveland. General contract to Aronberg-Fried Co.

500 tons, hotel and garage at Reading, Pa. General contract to the Hunkin-Conkey Construction Co., Cleveland.

500 tons, miscellaneous bridge work for Pennsylvania railroad.

500 tons, New York state highway bridge.

500 tons, widening of Park avenue by New York Central, New York.

450 tons, Roosevelt school, San Francisco. Bids opened.

450 tons, works office building, Inland Steel Co., Indiana Harbor, Ind.

450 tons, state bridge at Richmond, Vt.

400 tons, office building, Sansome street, San Francisco. Bids received.

360 tons, building work at Peru, Chile.

300 tons, bridge work for Rock Island railroad at Trenton, Mo.

200 tons, fieldhouse, Pullman college, Pullman, Wash. Bids May 10.

150 tons, sales and service building at Utica, N. Y., for the White Motor Co., Cleveland. General contract to the De Hamel Construction Co., Cleveland.

100 tons, freight house at East Fifty-seventh street and Filbert avenue, Cleveland, for the Nickel Plate Development Co., Cleveland. General contract to R. S. Ursprung.

100 tons, building, Carnegie and East 105th street, Cleveland. General contract let by the Clark-Elliott Co., to the Austin Co.

100 tons, Superior avenue station, New York Central-Nickel Plate railroads, Cleveland. General contract to Sam W. Emerson Co.

## Form Lath Trade Body

Washington, April 30.—The Metal Lath Export association has filed papers under the Webb-Pomerene law with the federal trade commission, for exporting metal lath of all kinds to foreign countries. The company will maintain offices at 90 West street, New York.

Members of the association are: Bostwick Steel Lath Co., Niles, O.; Consolidated Expanded Metal Co., New York; Truscon Steel Co., New York, and Penn Metal Co., Cambridge, Mass.

Officers are L. W. Shorter, president and director; G. R. Norman, secretary and director; J. A. Goodearl, H. M. Hein and R. H. Sagendorph, directors.

# Concrete Bars

**Lettings Topped by 2500 and 1000-ton Jobs—Pending List Fairly Active**

TWO buildings in New York and Baltimore, respectively take 2500 and 1000 tons of concrete bars. Several smaller structures let and pending indicate an active month. Road work in the west holds out promise of much tonnage. New York state road work takes mesh. Billet rolled bars are firmer in Chicago, but Cleveland still notes weakness. Specifications still are heavy.

REINFORCING BAR PRICES, PAGE 1281

**Chicago, May 7.**—Billet reinforcing bar quotations are firmer with rail steel bar prices still unsteady. Billet bar quotations now are fairly well established at 2.40c as a minimum. Illinois has awarded contracts for 650 to 700 miles of road work, and Indiana will award about 450 miles. Iowa's total road work will approximate 600 miles, and Wisconsin will build 300 to 325 miles. A 500-ton award leads local building.

Chicago building permits in April gained 22.05 per cent over March in value. Compared with April, 1928, last month's permits decreased 14.6 per cent in value.

**Boston, May 7.**—Less than 200 tons figured in last week's odd lot buying of concrete bars. The award of 1000 tons for the First National Stores warehouse in Somerville, Mass., has been postponed another week.

**Buffalo, May 7.**—Demand for mesh for road construction is heavy, approximately 700 tons of additional inquiry being listed this week. Coverage by successful contractors is piecemeal. Wire works make quick deliveries from stocks. No large reinforcing bar business was booked recently. The higher warehouse prices on reinforcing bars are being maintained.

**Pittsburgh, May 7.**—Specifications to mills for concrete reinforcing bars show further improvement with a heavy volume on inquiry. April tonnage gained seasonally over March and further increases are noted so far this month. The bulk of activity is confined to other districts, awards in the Pittsburgh territory holding to small tonnages. Four or five larger projects now are being figured. The market holds at 2.30c, Pittsburgh, for cut lengths and 2.05c for stock lengths.

**Cleveland, May 7.**—Most jobs involving concrete bars are small in the 15 to 50-ton range. However, a few in the 100 to 300-ton size are nearing the closing stage. The list includes the Henry street culvert extension on which revised bids were asked. This involves 240 tons and Roy Black is low. Freeman & Jones Inc. is low on the 100-ton Sumpes road bridge and the general contract on the Superior avenue railroad station, 100 tons, went to Sam W. Emerson Co. Some prices around 2.05c, Pittsburgh on cut lengths still appear occasionally, whereas some sellers are endeavoring to maintain a 2.25c or even 2.30c, Pittsburgh, price.

## Awards Compared

| | Tons |
|---|---|
| Awards this week | 9,218 |
| Awards last week | 6,509 |
| awards last week | 4,990 |
| Awards this week in 1928 | 11,061 |
| Average weekly awards, 1928 | 6,189 |
| Average weekly awards, 1929 | 6,522 |
| Total awards to date, 1928 | 143,737 |
| Total awards to date, 1929 | 123,910 |

## CONTRACTS PLACED

2500 tons, Holland Tunnel Plaza building, New York, to Jones & Laughlin Steel Corp., through Turner Construction Co.

1000 tons, building, Western Electric Co., Baltimore, to Truscon Steel Co.

1000 tons, grain bins, Fisher Flouring Mills Co., Seattle, to Pacific Coast Steel Co.

500 tons, building, Coca-Cola Bottling Co., Polk street and Crawford avenue, Chicago, to Joseph T. Ryerson & Sons Inc.

500 tons, building, Trenton Potteries Co., Trenton, N. J., to Truscon Steel Co.

490 tons, school, Arguello boulevard, San Francisco, to W. S. Wetenhall Co.

400 tons, cannery, Fifty-fourth avenue, Oakland, to Soule Steel Co.

375 tons, Reading railroad, Reading, Pa.; to Gilmore-Roslyn Steel Co., through the Hughes-Foulkrod Co.

350 tons, Northrupp-King elevator, Minneapolis, to unstated interest.

280 tons, sewer, Brooklyn, to Igoe Bros.

250 tons, Noel hotel, Nashville, Tenn., to Conners Steel Co.

250 tons, bridge work at Aurora, Ill., to Joseph T. Ryerson & Sons Inc.

235 tons, store and office building, Klee Bros. & Co., Milwaukee and Cicero avenues, Chicago, to unstated fabricator; A. Epstein, architect.

200 tons, superstructure, Cleveland club, Cleveland, to Bourne-Fuller Co.

190 tons, building, Realty Construction Co. at Broadway and Walker street, New York, to Igoe Bros.

175 tons, addition, Robert E. Lee hotel, Winston-Salem, N. C., to Connors Steel Co.

170 tons, apartment, 848 South Oxford street, Los Angeles, to unstated interest.

150 tons, garage, 2569 North Clark street, Chicago, to Calumet Steel Co.

103 tons, for city of Los Angeles, to Soule Steel Co.

100 tons, garage, Chicago, to Concrete Engineering Co.

## CONTRACTS PENDING

375 tons, for Roosevelt boulevard, Kuckville, N. Y., section, W. J. Gallagher, Medina, N. Y., low bidder.

300 tons, East Ninth street bridge, Cleveland Union Terminal Co., Cleveland. General contract awarded to H. E. Culbertson Co.
240 tons, Henry street culvert extension, Cleveland. Roy Black low bidder.
215 tons, (mesh), Hamlin-Brockport, N. Y., road, J. M. Murray, Rochester, contractor.
180 tons, paving in Santa Clara county, Calif. Bids May 22.
160 tons, locomotive sheds, Cleveland Union Terminal Co., Cleveland. General contract awarded Aronberg Fried Co.
150 tons, (mesh), for Fairport-Nine Mile, N. Y., highway, F. J. Cadin, Syracuse, contractor.
100 tons, Superior street station, New York Central-Nickel Plate railroads, Cleveland. General contract to Sam W. Emerson Co.
100 tons, county bridge, Sumpes road, Parma, O. Freeman & Jones Inc., low on general contract.

## West Penn Merges with Allegheny Steel

Pittsburgh, May 7.—Stockholders of the Allegheny Steel Co. and West Penn Steel Co., Brackenridge, Pa., have approved absorption of the latter company by Allegheny. A new company has been formed to be known as the Allegheny Steel Co., as before. The combined ingot capacity of the new organization will be 450,000 tons annually, with a sheet capacity of 250,000 tons; seamless and lapwelded tubing and pipe, 30,000 tons, and iron and steel castings 24,000 tons.

There has been no change in the capital structure but an increase may be effected at a later date, it is understood. Allegheny Steel now has outstanding 539,262 shares of an authorized issue of 600,000 shares common stock, in addition to $3,336,600 of 7 per cent preferred, par value $100 a share, outstanding. Stockholders of the West Penn Steel Co. received cash, stock or a combination in exchange for their shares under an offer made to them by Allegheny some time ago. No change is contemplated in personnel of the company at present. H. E. Sheldon is president.

## Sponsors Conference on Foreign Selling

A conference to discuss economic and industrial developments in foreign countries with particular reference to their application to the problems of industrial advertising and selling throughout the world will be held in Washington, May 10, under auspices of the department of commerce . Co-operating organizations include the National Industrial Advertisers committee of the Association of National Advertisers Inc. and Associated Business Papers Inc.

## Buffalo Record Seen

Buffalo, May 7.—Operation of open hearth units in the Buffalo district indicates that steel works are running at fully 90 per cent of normal capacity. While this rate probably will be maintained this month, planners of schedules look forward to a reduction in June, especially in works catering especially to the automotive trade. Combined March, April and May district production of steel probably will reach all time record proportions, it is said here.

# Rails, Cars

**1800 or More Cars Let—7150 Now Pending—Railroads Defer to Other Steel Needs**

MAY starts out well with more than 1800 cars let and approximately 7000 freight cars and 150 passenger cars actively pending. April lettings are tentatively set at 7035, as against 12,023 in March. Railroads are allowing their rail needs to yield to other steel needs during present stringency. Secondary rail tonnage is light but track fastening orders continue fair.

RAILROAD TRACK PRICES, PAGE 1282

**Chicago, May 7.**—Car orders distributed to western shops total 1800 units, including 500 automobile cars for Union Pacific, 600 refrigerator cars for Pacific Fruit Express Co., 200 flat cars for Northern Pacific, and 500 refrigerator cars for Northwestern Refrigerator Co. Northern Pacific is inquiring for 100 stock car underframes. Car builders' specifications for finished steel to western mills are nearing the peak.

Rail mills and track fastenings departments are operating at capacity. Track laying programs are proceeding rapidly. Railroads are calling for shipments. Track fastenings sales in the week just closed totaled over 3000 tons. Secondary rail tonnage is light.

**New York, May 7.**—Car buying in this district continues light, with fresh inquiries spotty. Some substantial business remains active. The 3000 cars for Baltimore & Ohio still are in abeyance.

Preliminary estimates indicate that domestic freight car buying in April involved 7035, as compared with 12,023 in the preceding month. This figure includes 2000 cars for Canadian National, taken into account because the equipment will be operated over lines in this country.

Because the huge demand for steel surpasses present ingot output, steel mills have been urging railroads to postpone requests for rail shipments. It is stated that this will benefit railroads in that it will insure freer movement of steel for general industrial purposes at a time when this demand is at its maximum. Railroads have been influenced considerably by this argument. Pressure still is heavy for rails where installations must be made without delay.

**Pittsburgh, May 7.**—New buying of tie plates, bolts and other track accessories is steady but not brisk. Specifications against old orders, however, are well maintained. Mill operations in production of standard rails are holding. Equipment builders are well engaged on orders booked since the first of the year but new business is lacking. Light rails are quiet.

### CAR ORDERS PLACED

Baltimore & Ohio, seven parlor-cafe cars to Pullman Car & Mfg. Co.
Bangor & Aroostook, two steel caboose car underframes, to American Car & Foundry Co.
Chicago & Northwestern, 24 suburban coaches, to Standard Steel Car Co.
Eastern Michigan, flat car, to American Car & Foundry Co.
New York Central, 10 multiple unit suburban car bodies, to Standard Steel Car Co.
Northern Pacific, 200 flat cars to Pressed Steel Car Co.
Northwestern Refrigerator Co., 500 refrigerator cars to American Car & Foundry Co., in addition to 150 awarded recently.
Pacific Fruit Express Co., 600 refrigerator cars to Pacific Car & Foundry Co.
Union Pacific, 500 automobile cars to Ralston Steel Car Co. and one plow car to American Car & Foundry Co.

### CAR ORDERS PENDING

Chesapeake & Ohio, two diners.
Erie, 25 caboose cars.
Northern Pacific, 10 stock car underframes.
New York, New Haven & Hartford, six dining cars; were previously noted as contemplated.
New York, Chicago & St. Louis, 500 automobile cars.
Northern Pacific, 100 stock car underframes.

## Furniture Orders Lower

Washington, May 7.—March orders and shipments of steel furniture were decidedly lower in March than the three months preceding, according to figures of the department of commerce. Monthly comparisons follow:

| | Business Group | | Shelving | |
|---|---|---|---|---|
| | Orders received | Shipments | Orders received | Shipments |
| | (In Dollars) | | | |
| 1927 | | | | |
| Total | 30,760,343 | 31,105,789 | 7,351,122 | 7,264,282 |
| 1928 | | | | |
| Jan. | 3,248,165 | 2,712,663 | 768,748 | 680,264 |
| Feb. | 3,295,861 | 2,908,527 | 741,310 | 681,999 |
| March | 3,283,329 | 3,169,351 | 841,098 | 813,607 |
| April | 2,915,344 | 3,065,637 | 740,658 | 716,104 |
| May | 3,085,638 | 3,213,291 | 732,921 | 768,988 |
| June | 2,764,085 | 3,009,229 | 727,060 | 720,253 |
| July | 2,594,216 | 2,515,482 | 713,330 | 722,516 |
| Aug. | 2,619,234 | 2,564,638 | 863,422 | 836,105 |
| Sept. | 2,689,009 | 2,754,135 | 799,850 | 678,422 |
| Oct. | 3,192,927 | 3,158,998 | 958,726 | 953,804 |
| Nov. | 2,675,664 | 2,854,312 | 875,354 | 915,640 |
| Dec. | 3,610,645 | 3,117,139 | 828,555 | 791,376 |
| Total | 35,974,117 | 35,043,412 | 9,601,032 | 9,297,078 |
| 1929 | | | | |
| Jan. | *3,892,651 | *3,614,961 | *1,099,575 | *901,970 |
| Feb. | 3,060,290 | *3,242,581 | 919,557 | 974,305 |
| March | 2,883,716 | 2,923,363 | 1,145,632 | 1,109,876 |

*Revised.

Treasury department, Washington, has granted a drawback on imported seamless steel tubes which are machined, hardened and ground by the Cameron Machine Co., Brooklyn, N. Y.

# Strip

**Backlogs Continue in Face of High Production — Automotive Buying Holds Well**

SPECIFICATIONS for strip steel are slightly less than at the peak of the spring and continue about equal to those of April 1. In spite of the slightly lessened rate mills are unable to bring deliveries closer than four to eight weeks. Third quarter prices may be named soon. Automotive buying has made less decline than had been expected and continues large.

STRIP PRICES, PAGE 1282

**Chicago, May 7.**—Western producers of cold rolled strip have backlogs of six to eight weeks, and are promising shipments accordingly. Operations are about 70 per cent for the district. It is understood third quarter prices may be named shortly. The range of 2.75c to 2.85c, Pittsburgh-Cleveland, is the prevailing price now.

Hot rolled strip mills are operating close to capacity. Deliveries are extended six to eight weeks. Prices for material 6 inches and under are 2.10c to 2.30c, Chicago, while 6 1/16 to 24-inch material is quoted 2.00c to 2.10c, Chicago.

**Pittsburgh, May 7.**—Specifications for strip steel are holding to the slower pace noted during April. Producers still have a large volume of unfilled business, however, and are holding operations to their recent peak. Backlogs were reduced only slightly during April and delivery still varies from four to five weeks on cold-rolled material, to five to seven weeks on hot strip. Producers fail to note a marked decrease in specifications from automotive interests although buying is slightly below the heavy March tonnage. The market is firm at 1.90c and 2.00c for the two sizes of hot strip, and 2.75c to 2.85c for cold-rolled.

**Cleveland, May 7.**—Buyers of both hot and cold strip steel continue insistent for delivery. While automotive demand is receding a trifle, miscellaneous consuming industries maintain good shipping instructions. Prices are unchanged and firm. Cold strip deliveries average four to five weeks; hot from six to eight.

**Buffalo, May 7.**—Specifications for strip steel are holding to the slower pace noted during April. Producers still have a large volume of unfilled business, however, and are holding operations to their recent peak. Backlogs were reduced only slightly during April and delivery still varies from four to five weeks on cold-rolled material, to five to seven weeks on hot strip. Producers fail to note a marked decrease in specifications from automotive interests although buying is slightly below the heavy March tonnage. The market is firm at 1.90c and 2.00c for the two sizes of hot strip, and 2.75c to 2.85c for cold-rolled.

**Cleveland, May 7.**—Buyers of both hot and cold strip steel continue insistent for delivery. While automotive demand is receding a trifle, miscellaneous consuming industries maintain good shipping instructions. Prices are unchanged and firm. Cold strip deliveries average four to five weeks; hot from six to eight.

# Cold Finished Steel

**Specifications Continue in Steady Stream with Heavy Shipments**

COLD FINISHED PRICES, PAGE 1282

**Pittsburgh, May 7.**—Cold finished bar producers are receiving a steady flow of specifications with only a slight decrease in demand from automotive interests. Some makers in the lower-priced car field have made no reduction in commitments. April shipments were slightly ahead of March and backlogs have been reduced slightly during the past 30 days. On the basis of current backlogs and specifications against existing contracts, producers see well sustained operations into June. The market continues firm at 2.30c, Pittsburgh.

**Cleveland, May 7.**—While on some sizes of cold-finished bars deliveries can be made within two to three weeks, other sizes are delayed four to six weeks. Demand is well sustained and distribution is good. Automotive needs still are high. The price, 2.35c, Cleveland is firm.

# Make More Pails, Tubs

Washington, May 7.—Production of pails and tubs in March was well above that for February, according to compilations of the department of commerce. Monthly comparisons follow.

(In dozens)

| | PAILS, TUBS | | OTHER WARE | |
|---|---|---|---|---|
| 1928 | Production | Shipments | Production | Shipments |
| Jan. | 125,536 | 149,304 | 32,678 | 35,689 |
| Feb. | 165,757 | 162,153 | 28,513 | 26,334 |
| March | 173,592 | 175,472 | 50,904 | 45,205 |
| April | 208,544 | 201,119 | 31,545 | 36,452 |
| May | 177,110 | 155,561 | 39,206 | 35,143 |
| June | 141,448 | 144,385 | 48,038 | 44,833 |
| July | 114,342 | 121,415 | 61,688 | 47,856 |
| Aug. | 127,797 | 142,487 | 37,846 | 44,377 |
| Sept. | 150,845 | 139,183 | 55,850 | 50,606 |
| Oct. | 153,813 | 152,258 | 56,469 | 54,596 |
| Nov. | 131,792 | 103,290 | 33,553 | 34,012 |
| Dec. | 112,923 | 102,802 | 36,042 | 23,567 |
| Total | 1,795,625 | 1,763,401 | 515,428 | 481,421 |
| 1929 | | | | |
| Jan. | 151,106 | 165,745 | 40,649 | 36,896 |
| Feb. | 151,019 | 170,813 | 60,471 | 43,329 |
| March | 211,025 | 21,,051 | 50,055 | 49,549 |

The Symington Co. and the Gould Coupler Co. have moved their New York City offices from 250 Park avenue to the New York Central building, 230 Park avenue.

# Wire

**Better Demand Aids Movement —Production Remains at High Level—Prices Are Steady**

INCREASING demand for wire and nails from agricultural areas is putting the market on a better footing and jobbers are moving their stocks more rapidly. Four months have given a total movement fully equal to that of a year ago. Manufacturers' wire continues a strong factor in demand. Automotive requirements have remained at a high level.

WIRE PRICES, PAGE 1282

**Chicago, May 7.**—Sales of wire nails, barbed wire and woven fencing are gaining steadily in the farming areas. Jobbers and dealers have succeeded in reducing stocks to a comfortable level. Jobbers report April business brought the total volume for the four months this year equal to a year ago. Merchants' and manufacturers' wire shows little slackening from the activity of the past three or four months. Operations are steady at about 70 per cent for the district. Prices to large jobbers are steady at 2.55c, Chicago or western mills, for bright plain wire, and $2.70 for wire nails.

**Worcester, Mass., May 7.**—Specifications for wire and wire products continue to hold up fairly well to the recent slight improvement at steady prices, covering a wide range of materials. Shipments are heavy and mill stocks are well worked downward. In several instances mills are close to 70 per cent. Manufacturers and merchants wire is steady. Plain wire is firm at 2.75c Worcester base, to dealers.

**Buffalo, May 7.**—Wireworks operated at exceptionally high rates during April, while May schedules indicate similar production. Automobile manufacturers have been large buyers of wire, and their specifications have been coming forward freely.

**Pittsburgh, May 7.**—Specifications for wire products hold to a better rate than a month ago. The improvement in buying which raised April above the March level is confined largely to fencing material and wire nails. Manufacturers' wire, which continues active, has been in steady demand since the first of the year. Demand for material from the agricultural districts is slightly spotty, influenced by weather conditions. Nail demand, although more active, still is restricted. The market is steady at 2.50c to 2.60c for plain wire and $2.65 to $2.75 for wire nails.

**Cleveland, May 7.**—Steady calls for wire and wire products are being made by nut and bolt producers. Users of manufacturers' wire are active. Nail orders are small but fairly well sustained. Jobbers have good stocks. Prices are firm. Operations average higher than 75 per cent.

# Nonferrous Metals

**Trade Becomes More Confident As Copper Holds At 18-cent Level—Lead Sales Are Fair—Buying in General Is Light**

## Prices of the Week, Cents a Pound

| | Copper—Electro delivered | Copper—Lake delivered | Copper—Casting refinery | Straits Tin New York Spot | Straits Tin New York Futures | Lead New York | Lead East St. Louis | Zinc St. Louis | 98-99% Aluminum | Spot Antimony | Ingot Nickel |
|---|---|---|---|---|---|---|---|---|---|---|---|
| May 1 | 18.00 | 18.07½ | 17.62½ | 43.87½ | 44.00 | 7.00 | 6.80 | 6.60 | 23.90 | 9.12½ | 35.00 |
| May 2 | 18.00 | 18.07½ | 17.62½ | 43.75 | 43.87½ | 7.00 | 6.80 | 6.60 | 23.90 | 9.00 | 35.00 |
| May 3 | 18.00 | 18.07½ | 17.62½ | 43.87½ | 44.00 | 7.00 | 6.80 | 6.60 | 23.90 | 9.00 | 35.00 |
| May 6 | 18.00 | 18.07½ | 17.62½ | 44.00 | 44.10 | 7.00 | 6.80 | 6.60 | 23.90 | 9.00 | 35.00 |
| May 7 | 18.00 | 18.07½ | 17.62½ | 44.12½ | 44.18¾ | 7.00 | 6.80 | 6.60 | 23.90 | 9.00 | 35.00 |

NEW YORK, May 7.—Returning confidence in the stability of copper at 18.00c is the outstanding development in an otherwise quiet week in the nonferrous metal market. Buying of most metals was light, although purchases of lead were of fair size.

The scrap copper market became stronger and this was interpreted as an important straw in the wind. Domestic and export buyers paid ¼-cent more for some of the most important grades of brass and copper scrap.

The reparations situation shows more promise and is an encouraging factor. New buying of commodities in Germany has been held back on account of financial uncertainty. Settlement of the reparations question would be important to German business and to all international markets.

**Copper**—The market continues unchanged at 18.00c, Connecticut, with little business in the domestic market but a slight improvement in export sales. Producers are receiving some requests for shipment of June copper in May. Shipments are going ahead in very large tonnage. Mills continue to operate close to capacity rates. They have not taken on much new business lately but still have large orders booked. It is believed that the buying of products for June shipment will become active soon. The mills are well covered on their needs for copper through July but it is believed they still need a little more metal for June and July consumption.

**Tin**—The price of Straits has been unusually steady in the past week, around 44.00c. Buying has been light. April statistics showed a decrease of 279 tons in the world visible supply, whereas a little increase has been expected. However, the market continues weak and uncertain, as this change was small. Deliveries of tin in the United States last month were 8435 long tons, a figure seldom equalled. Consumption of tin undoubtedly is setting new records here, and running good in England.

**Zinc**—Prime western has become a little more active in the past few days after several weeks of unusual quietness. The market had begun to appear a little uncertain at 6.60c, East St. Louis, when the new buying was done. Some smelters have continued to ask the recent top price of 6.80c, but this merely means that they are well booked and do not care to sell very much at present. A short time ago some business was done by dealers at less than 6.60c but that metal has been taken up. The zinc ore market continues unchanged at $44 a ton, but sales in the past few weeks have been much lighter than production. Domestic shipments of slab zinc in the United States were record-breaking during April. Exports declined from the March rate, however, which caused a reduction in the total movement of metal into domestic and foreign consumption. Stocks of slab zinc were cut to their lowest point since the end of September, 1927, and the daily rate of output increased.

**Lead**—Some buying has been done in the past week for May and June shipment. Prices have been unchanged and undertone steady in the past week.

**Aluminum**—Shipments are unusually large, and the prices are firm but unchanged. The market appears to be in fine position.—*Daily Metal Trade.*

## Mill Products

**Base price cents per pound f.o.b. mill, except where otherwise specified**

| | |
|---|---|
| **SHEETS** | |
| Yellow brass (high) | 23.25 |
| Copper, hot rolled | 27.75 |
| Lead, full sheets (cut ¼c more) | 10.00 |
| Zinc sheet (100-pound base) | $10.25 |
| Zinc strip (100-pound base) | $9.25 |
| Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide | 31.30 |
| **SEAMLESS TUBE** | |
| Yellow brass (high) | 28.25 |
| Copper | 29.25 |
| **RODS** | |
| Yellow brass (high, full turnings) | 21.25 |
| Naval brass | 24.00 |
| **WIRE** | |
| Copper | 19.87½ |
| Yellow brass (high) | 23.75 |

## Old Metals

**Dealers' buying prices, cents per pound**

| | |
|---|---|
| **HEAVY RED BRASS** | |
| New York | 12.00 to 12.50 |
| Chicago | 11.50-nominal |
| Cleveland | 12.00 to 12.50 |
| **HEAVY YELLOW BRASS** | |
| Cleveland | 8.50 to 9.00 |
| **ZINC** | |
| New York | 3.50 to 3.75 |
| Cleveland | 3.25 to 3.50 |
| **HEAVY COPPER AND WIRE** | |
| New York | 14.00 to 14.25 |
| Boston | 13.50 to 14.00 |
| Chicago | 12.50-nominal |
| Cleveland | 14.00 to 14.25 |
| **RED BRASS BORINGS** | |
| New York | 11.00 to 11.50 |
| **YELLOW BRASS TUBING** | |
| Cleveland | 8.00 to 9.00 |
| **LIGHT COPPER** | |
| New York | 12.00 to 12.25 |
| Chicago | 11.50-nominal |
| Cleveland | 12.50 to 13.00 |
| **LIGHT BRASS** | |
| Boston | 8.00 to 8.50 |
| Chicago | 7.50-nominal |
| Cleveland | 7.00 to 7.25 |
| **ALUMINUM** | |
| Clippings, Cleveland | 18.00 to 18.50 |
| Borings, Cleveland | 10.00 to 10.50 |
| Cast, Cleveland | 12.75 to 13.25 |
| Cast, Boston | 10.50 to 11.00 |

## Secondary Metals

| | |
|---|---|
| Remelt aluminum No. 12 | 17.00 to 17.50 |
| Brass ingot, 85-5-5-5 | 16.25 to 16.50 |

# Coke By-Products

**Sulphate Demand Slackens—Naphthalene Season Is Prolonged**

**New York, May 7.**—With long-time contracts for the fertilizer industry now about filled, sulphate of ammonia prices are easier at $2.20 to $2.30, delivered. Sellers expect little activity before June or July. This prospect finds further support in the sluggish demand from abroad. Export prices are purely nominal.

Moderate trading in naphthalene continues. Due to unfavorable weather delaying the cleaning season, buying in fairly good volume may be prolonged for two or three weeks. Prices are unchanged.

## Coke Oven By-Products

**Per Gallon at Producers' Plant in Tank Lots**

| | Spot |
|---|---|
| Pure Benzol | $0.23 |
| 90 per cent benzol | 0.23 |
| Toluol | 0.40 |
| Solvent naphtha | 0.30 |
| Commercial xylol | 0.30 |
| **Per Pound at Producers' Plants in 250-Pound Drums** | |
| Phenol | 0.17 |
| **Per Pound at Producers' Plants** | |
| Naphthalene flakes | 0.05½ to 0.06½ |
| Naphthalene balls | 0.06½ to 0.07½ |
| **Per 100 Pounds Delivered** | |
| Sulphate of ammonia | $2.20 to 2.30 |

# Quicksilver Is Quiet

**New York, May 7.**—Quicksilver is quiet and steady at $123 to $123.50 a flask. Some sellers quote only the lower figure.

# Warehouse

**Orders Well Diversified—Total Tonnage Holding to April Rate—Deferred Mill Deliveries Responsible—Chicago Boosts Prices**

FROM the way May starts out, it too will be a good month for warehouse sales, following two splendid months in March and April. Demand is well sustained, aided in many directions by deferred mill deliveries. Prices are firm in all sections, with advances of $3 to $5 per ton in various Chicago products.

**Chicago**—Iron and steel warehouses in the Chicago district announce an advance of $5 a ton on the price of one pass cold rolled black sheets and galvanized sheets, $3 a ton for No. 6 gage bright basic wire, and $4 a ton on the price of large structural rivets, round and cone heads. Black sheets, No. 24 base, now are 4.05c, and No. 24 galvanized are 4.90c. The price on round basic wire now is 3.30c.

**New York**—Greater stability is now characterizing the local warehouse market than in considerable time. Relatively little price shading is noted and, with an increasing volume of business, jobbers look for continued strength. At the same time they do not anticipate any early increases. Black sheets are strong at 4.00c. Business so far this month is fully comparable with the April rate when the volume exceeded any previous month this year and showed a decided improvement over last year.

**Pittsburgh**—Lighter rolled steel products are active partly because of heavy backlogs of mills which prevent prompt delivery, particularly on sheets and strip. April total sales compared favorably with those of March, some interests reporting a slight gain while others noted about the same tonnage. Prices continue steady.

**Cleveland**—Orders for practically all items handled by steel warehouses continue in good demand. Tonnage so far this month is comparable with April, and May's aggregate tonnage will probably come up to April total.

**Cincinnati**—Reinforcing bars are showing increased activity in the warehouse market. Structural shapes and plates are second and third respectively. Total business is good and the demands indicate an increase in outside work. Black sheets, 24-gage have jumped to 4.05c and galvanized sheets advanced to 4.90c.

**St. Louis**—Warehouse activity continues brisk, and in the main satisfactory. Purchasing of seasonal commodities shows somewhat more life, and demand for the general run of building goods is better.

Temporary stimulation in some items has resulted from high water.

## Warehouse Quotations in Cents Per Pound at Leading Market Centers

### STEEL BARS

| | |
|---|---|
| Baltimore | 3.25c |
| Boston | 3.265c |
| Buffalo | 3.30c |
| Chicago | 3.00c |
| Cincinnati | 3.30c |
| Cleveland | 3.00c |
| Detroit | 3.00c |
| Ft. Worth | 3.75c |
| Houston | 3.00c |
| Los Angeles | 3.30c |
| New York †††‡ | 3.25c |
| Philadelphia* | 2.80c |
| Pittsburgh | 2.90c |
| Portland | 3.00c |
| San Francisco | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.15c |
| St. Paul | 3.25c |
| Tulsa | 3.75c to 4.04c |

### IRON BARS

| | |
|---|---|
| Baltimore | 3.25c |
| Boston | 3.265c |
| Buffalo | 3.30c |
| Chicago | 3.00c |
| Cincinnati | 3.30c |
| Detroit | 3.00c |
| Ft. Worth | 3.75c |
| New York†† | 2.80c to 3.24c |
| Philadelphia* | 2.80c |
| St. Louis | 3.15c |
| Tulsa | 3.75c to 4.04c |

### REINFORCING BARS

| | |
|---|---|
| Baltimore | 3.31c |
| Boston | 3.265c to 3.50c |
| Buffalo | 2.90c |
| Cincinnati | 3.15c |
| Cleveland | 2.25c to 2.44c |
| Detroit | 2.30c to 3.00c |
| Ft. Worth | 3.50c |
| Houston | 3.00c |
| Los Angeles cl. | 2.65c |
| Los Angeles, lcl. | 3.00c |
| New York | 2.90c to 3.30c |
| Philadelphia | 2.75c to 3.10c |
| Pittsburgh | 2.90c to 3.175c |
| San Francisco cl. | 2.00c |
| San Francisco lcl. | 2.25c |
| Seattle | 3.00c |
| St. Louis | 3.15c |
| Tulsa | 3.75c to 4.00c |
| Youngstown | 2.30c to 2.60c |

### STRUCTURAL SHAPES

| | |
|---|---|
| Baltimore | 3.25c |
| Boston | 3.365c |
| Buffalo | 3.40c |
| Chicago | 3.10c |
| Cincinnati | 3.40c |
| Cleveland | 3.00c |
| Detroit | 3.10c |
| Ft. Worth | 4.00c |
| Houston | 3.25c |
| Los Angeles | 3.30c |
| New York†††‡ | 3.25c to 3.30c |
| Philadelphia* | 2.70c |
| Pittsburgh | 3.00c |
| Portland | 3.00c |
| San Francisco | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.25c |
| St. Paul | 3.35c |
| Tulsa | 3.75c to 4.14c |

### PLATES

| | |
|---|---|
| Baltimore | 3.25c |
| Boston | 3.365c |
| Buffalo | 3.40c |
| Chicago | 3.10c |
| Cincinnati | 3.40c |
| Cleveland, ¼-in. and thicker | 3.00c |
| Cleve., 3/16-in. | 3.20c |
| Detroit | 3.10c |
| Detroit, 3/16-in. | 3.30c |
| Ft. Worth | 4.00c |
| Houston | 3.00c |
| Los Angeles | 3.30c |
| New York‡‡ | 3.30c |
| Philadelphia* | 2.70c |
| Pittsburgh | 3.00c |
| Portland | 3.00c |
| San Francisco | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.25c |
| St. Paul | 3.35c |
| Tulsa | 3.75c to 4.14c |

### NO. 10 BLUE ANNEALED

| | |
|---|---|
| Baltimore | 3.60c |
| Boston 3/16-in. | 3.915c |
| Buffalo | 3.50c |
| Chicago | 3.35c |
| Cincinnati | 3.45c |
| Cleveland | 3.25c |
| Detroit | 3.35c |
| Ft. Worth | 4.50c |
| Houston | 3.90c |
| Los Angeles | 4.00c |
| New York‡‡ | 3.90c |
| Portland | 3.75c |
| Philadelphia*† | 3.25c |
| Pittsburgh** | 3.35c to 3.45c |
| San Francisco | 3.80c |
| Seattle | 4.00c |
| St. Louis | 3.45c |
| St. Paul | 3.75c |
| Tulsa | 4.20c to 4.34c |

### NO. 24 BLACK SHEETS

| | |
|---|---|
| Baltimore | 3.50c to 4.00c |
| Boston | 4.85c |
| Buffalo | 4.20c |
| Chicago | 4.05c |
| Cincinnati | 4.05c |
| Cleveland*** | 3.90c |
| Detroit | 3.95c |
| Ft. Worth | 4.70c |
| Los Angeles | 4.90c |
| New York | 4.00c |
| Philadelphia*† | 4.10c |
| Pittsburgh** | 3.85c |
| Portland | 4.90c |
| San Francisco | 4.90c |
| Seattle | 5.00c |
| St. Louis | 4.25c |
| St. Paul | 3.89c |
| Tulsa | 4.34c |

### NO. 24 GALVANIZED SHEETS

| | |
|---|---|
| Baltimore | 4.30c to 4.50c |
| Boston | 5.60c |
| Buffalo | 4.70c to 4.85c |
| Chicago | 4.90c |
| Cincinnati | 4.90c |
| Cleveland*** | 4.75c |
| Detroit | 4.75c |
| Ft. Worth | 5.50c |
| Houston | 5.30c |
| Los Angeles | 5.30c |
| New York | 4.75c |
| Philadelphia*† | 4.85c |
| Pittsburgh** | 4.85c to 4.95c |
| Portland | 5.50c |
| San Francisco | 5.30c |
| Seattle | 5.50c |
| St. Louis | 5.10c |
| St. Paul | 4.68c |
| Tulsa | 5.10c to 5.35c |

### BANDS

| | |
|---|---|
| Baltimore | 4.00c |
| Boston | 4.015c to 5.00c |
| Buffalo | 3.65c |
| Chicago | 3.20c |
| Cincinnati | 3.50c |
| Cleveland | 3.25c to 3.65c |
| Detroit, 3/16-in. and lighter | 3.80c |
| Ft. Worth | 4.25c |
| Houston | 3.65c |
| Los Angeles | 4.15c |
| New York‡‡ | 3.75c |
| Philadelphia* | 3.15c |
| Pittsburgh | 3.25c |
| Portland | 4.00c |
| San Francisco | 3.75c |
| Seattle | 4.00c |
| St. Paul | 3.50c |
| Tulsa | 4.50c to 4.69c |

### HOOPS

| | |
|---|---|
| Baltimore | 4.00c |
| Boston | 5.50c to 6.00c |
| Buffalo | 4.05c |
| Chicago | 3.75c |
| Cincinnati | 4.05c |
| Cleveland | 3.25c to 3.65c |
| Detroit, No. 14 and lighter | 3.80c |
| New York‡‡ | 4.25c |
| Philadelphia* | 3.40c |
| Pittsburgh | 4.25c |
| Seattle | 5.00c |
| St. Paul | 4.00c |

### COLD FINISHED STEEL

| | Rounds, hexagons, | Flats, squares |
|---|---|---|
| Baltimore (c) | 3.50c | (a) 4.00c |
| Boston | 3.55c | 4.05c |
| Buffalo | 3.95c | 4.45c |
| Chicago | 3.60c | 4.10c |
| Cincinnati | 3.85c | 4.35c |
| Cleveland | 3.65c | 4.15c |
| Detroit | 3.85c | 4.35c |
| Los Angeles (a) | 4.50c | ..... |
| New York | 3.60c | 4.10c |
| Philadelphia* | 3.60c | 4.10c |
| Pittsburgh | 3.70c | 4.20c |
| Portland (a) | 4.50c | ..... |
| San Fran. (a) | 4.25c | ..... |
| Seattle (a) | 5.00c | ..... |
| St. Paul (a) | 3.85c | ..... |
| Tulsa | 4.64c | 5.14c |

(a) Rounds only.

### COLD ROLLED STRIP

| | |
|---|---|
| Boston, 0.100-inch, 500 pound lots | 5.30c |
| Buffalo | 5.85c |
| Chicago (b) | 6.10c |
| Cincinnati | 7.15c |
| Cleveland (b) | 5.95c |
| Detroit | 5.80c |
| New York | 5.15c |
| Philadelphia (c) | 5.15c |

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

### SWEDISH IRON AND STEEL

**New York duty paid**

| | |
|---|---|
| Hollow drill steel | 13.00c |
| Iron bars, round | 6.10c |
| Iron bars, flats and squares | 6.50c |

*Plus quantity differentials. ‡‡Minus quantity differentials. †† Domestic bars. **Less than 25 sheets. *†50 or more bundles.
***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

# Pacific Coast

**Several Large Tonnages of Plates and Shapes Placed —Much Work in Prospect**

PLATES and shapes were active on the Coast the past few days and unusual tonnages were placed. Pipe lines took plates and the Southern Pacific Co. awarded a tonnage for carbuilding. General activity is maintained and building of various sorts is active. Prices are being held firmly and steady buying of small lots sustains the market well.

**San Francisco, May 4.**—(*By Air Mail*)—Important developments during the past week included the opening of bids on 1300 tons of plates for a pipe line in Oakland and on 1200 tons for a siphon in South Dakota. In addition the Southern Pacific Equipment Co. placed 2500 tons of plates and shapes and the Pacific Car & Foundry Co. 4500 tons of plates and shapes.

### Bars, Plates and Shapes

Concrete bar awards this week aggregated 1673 tons, the largest weekly total in nearly two months. The two largest awards called for 490 tons and 400 tons, respectively, for a school in San Francisco and a canning plant in Oakland, the former booked by W. S. Wetenhall Co. and the latter by Soule Steel Co. Pending business totals over 7000 tons. Prices in the Los Angeles and San Francisco districts on out-of-stock material continue at 2.30c base on carload lots, with 2.20c applying on lots of 250 tons and 2.60c on small tonnages. Demand for merchant bar stock continues limited to small lots of numerous sizes. On this class of material 2.35c c.i.f. appears firm.

Awards of plates this week totaled 3740 tons, the largest weekly aggregate in seven weeks. This brings the total for the year to 61,474 tons, compared with 12,254 tons for the same period a year ago. The Southern Pacific Equipment Co. has awarded part of the tonnage for 300 flat cars to eastern mills. The original inquiry involved 3000 tons, of which 1450 tons was placed during the past day or two. The remainder will be placed shortly. The Pacific Car & Foundry Co., Seattle, placed 1500 tons with the Pacific Coast Steel Co. and 750 tons with unknown eastern mills. The Western Pipe & Steel Co. was low bidder on 1200 tons for a 96-inch siphon for the Belle Fourche Project in South Dakota. Bids were also opened this week on 1300 tons for a pipe line in Oakland for the East Bay municipal utility district. Plate prices continue, generally, at 2.35c c.i.f. Coast ports.

Awards of structural steel shapes this week aggregated 4240 tons. The largest letting called for 1050 tons for flat cars for the Southern Pacific Equipment Co., San Francisco. This material was placed with unknown eastern producers. Approximately 1150 tons is still pending. The Pacific Coast Steel Co. took 1500 tons of a 2250 ton award made by the Pacific Car & Foundry Co., the remainder going to eastern mills. New inquiries include 450 tons for a school in San Francisco and 2530 tons for a factory at Long Beach. Prices continue firm at 2.35c c.i.f.

### Other Finished Material

Awards of cast iron pipe were not heavy, less than 500 tons being placed. The United States Pipe & Foundry Co. secured 104 tons for Alhambra, Calif., and the Pacific States Cast Iron Pipe Co. took 195 tons for Vallejo, Calif. Pending business calls for approximately 3200 tons. Southgate, Calif., and Great Falls, Mont., open bids May 7 and May 6, respectively for 480 tons and 226 tons.

## Coast Pig Iron Prices

| | |
|---|---|
| Utah basic | $25.00 to 26.00 |
| Utah foundry | 25.00 to 26.00 |
| *German | 24.25 |
| *Indian | 25.00 to 26.00 |

*C.i.f. duty paid.

## Seattle Sales Steady

**Seattle, May 1.**—More than 3700 tons of structurals, reinforcing, plates and cast iron pipe were awarded in the Pacific Northwest during the week, indicating a steady volume of business in lots of more than 100 tons.

### Pig Iron and Coke

Foundry activity is being well maintained as sawmill and cannery work and marine repair jobs are being placed steadily. The trade is interested in reports that Bethlehem is about to invade this market with pig iron and some tentative offers are reported to be under consideration. No. 1 Columbia is steady at $27 while some Burn India iron has been bought at $25.75. Coke prices are unchanged at $13.50.

### Bars, Plates and Shapes

Mill prices are unchanged at 2.35c for bars and plates. Some business has been done in small tonnages of plates at this new level and it is reported to be holding firm. Reinforcing material is steady a 2.30c.

Active inquiry for pipe is reported by cast iron pipe agencies here and several large tonnages are up for figures. Much of this business is involved in municipal water system extensions and improvements. American Cast Iron Pipe Co. this week closed contracts for 1150 tons as follows: 900 tons for the Weyerhaeuser Timber Co. plant at Klamath Falls, Oreg.; and 150 tons for Victoria, B. C.

## Pig Iron

(*Concluded from Page* 1283)

dle western business. Domestic low phosphorus iron continues $23 to $23.50, eastern Pennsylvania furnace, for copper bearing and $23.50 to $24 for copper free. It is difficult to buy English low phosphorus iron at less than $23.50, duty paid, tidewater.

Carriers in the South have proposed lower pig iron tariffs from Birmingham as follows: $2.70 to Savannah, Charleston and Jacksonville; $3.50 to Norfolk. This would enable Birmingham iron to be put in here because iron can be barged to Delaware river points from Norfolk at $1 a ton, plus handling costs, making the total rate to Delaware river points from Birmingham around $4.75 to $5. Southern carriers also propose a lower rate to the north on pig iron, the suggested new rates being: Birmingham to Baltimore $4.75; to Philadelphia $5; to New York $5.25 and to Boston $5.50.

**Buffalo, May 7.**—The pig iron market is quiet. Rumors of lower prices quoted in the East are thought to have caused the cessation of buying. Shipments continue good and operation is unchanged. Buffalo furnaces report there is no change in their price policy.

**New York, May 7.**—New pig iron buying is small, probably not exceeding more than 5000 tons in this territory during the past week. Generally, however, the situation has not been much affected, and the total consumption continues heavy, with shipments on contracts going forward actively. New inquiry is small. The price situation continues firm on foundry iron, Buffalo foundry holding here at $19, base, furnace, equivalent to $22.28 to $22.78, delivered at New Jersey tidewater points, and $23.91 to points in this district taking a rate of $4.91 from Buffalo. Other producers are quoting prices based largely on the delivered prices from Buffalo. Malleable iron continues to be quoted at $19.50, base, Buffalo. Small quantities of Indian and Dutch foundry iron, generally high in silicon, continue to be made here, the Indian at $21.50 to $22, base, duty paid, tidewater, and the Dutch at $22.25 to $22.50, duty paid, tidewater. For English low phosphorus iron the minimum price now appears to be $23.50, duty paid, tidewater, and at this figure the English iron does not offer any advantage as compared with prices on domestic low phosphorus iron.

---

The American Institute of Electrical Engineers will hold its annual summer convention at the New Ocean House, Swampscott, Mass., June 24-28.

*United States tariff commission, fact finding body for congress on matters pertaining to the tariff. Chairman Thomas O. Marvin is third from the right*

# Few Changes Are Found in Metals Schedule of Tariff Bill

## *Rates on Pig Iron, Manganese and Many Steel Products Remain Unchanged—Cast Iron Pipe Duty Increased*

*By Lynne M. Lamm*

WASHINGTON, May 7.—After having worked exactly four months to the day, the ways and means committee of the house, through its chairman, Willis C. Hawley of Oregon, has introduced the tariff bill. As forecast, the changes in the metals schedule were not as drastic as had been anticipated. The rate on pig iron was reported at $1.12½ per ton, which is the same rate arrived at by the tariff commission and authorized by the president some time ago.

The rate in the 1922 act was 75 cents. The fluorspar rate was increased from $5.60 to $8.40 per ton. The rate on manganese ore remains at one cent per pound, while the rate on cast iron pipe "and cast iron fittings for cast iron pipe" was increased from 20 to 30 per cent.

Representative Isaac Bacharach, chairman of the sub-committee on the steel schedule, had the following to say in connection with iron and steel:

"The data which we had before us for consideration showed that there are some maladjustments of classification and rates, and that the advantages which European producers of iron and steel enjoy as a result of low costs for labor and transportation, etc., have resulted in severe competition, particularly along the seaboards. Your committee has endeavored to readjust these inequalities without materially affecting the general level of rates imposed by the schedule.

"On iron in pigs we have incorporated the rate of $1.12½ per ton proclaimed by the president. We have revised the phraseology covering iron and steel scrap so as to prevent the importation of high-priced metallic elements as constituents of scrap at the lower rate of duty. We have also incorporated new phraseology to take care of sponge or granular iron, which is a comparatively new product in the United States and not specifically mentioned in the present act.

"Hollow drill steel, a high-priced product, is specifically mentioned and the rate increased. We have also increased the rate on cast-iron pipe, the imports showing a decided increase under the act of 1922."

Discussing alloy steel products, Representative Bacharach said:

"The provisions of this paragraph have been expanded to carry out the established policy of special tariff treatment for alloy steels so as to embrace the entire range of alloy materials and the products of which they are important components, and the phraseology has also been changed to provide for alloys contained in iron. Provision has also been made for

### High Lights in New Tariff Bill

*IN TWO important particulars, recommendations of the American Iron and Steel institute were ignored in the house tariff bill: Manganese ore is not restored to the free list as asked, but retains its present rate of 1 cent per pound. Pig iron, for which a duty of $3 per gross ton was requested, remains at $1.12½.*

*One of the most important proposed changes in the metals schedule is the increase from 20 to 30 per cent on cast iron pipe and cast iron fittings for cast iron pipe.*

*In several instances changes in phraseology have been made which will affect imports. This is particularly true of iron and steel scrap.*

*The flexible tariff provision, by which the president is empowered to alter tariffs up or down 50 per cent, is left unchanged.*

assessing higher rates of duty on chromium or vanadium contained in steel or iron."

In the first paragraph of the bill, that on pig iron, the basic rate as stated above, is $1.12½ and there is a special proviso at the end of the paragraph which reads as follows:

"Provided further, that an additional duty of $1 per pound on the vanadium content in excess of one-tenth of 1 per cent, 72 cents per pound on the tungsten content in excess of two-tenths of 1 per cent, 65 cents per pound on the molybdenum content in excess of two-tenths of 1 per cent, and 4 cents per pound on the chromium content in excess of two-tenths of 1 per cent, shall be levied, collected, and paid on all the foregoing."

Under paragraph 302 on manganese ore, the basic rate remains at one cent per pound, but the rate on tungsten ore has been increased from 45 to 50 cents and the committee in that same paragraph has added silicon aluminum, etc., at five cents per pound, and also boron carbide, etc., at 23 per cent.

**Ingot Rates Are Unchanged**

In paragraph 303 on muck bars, etc., there is no change in the rate. There is no change in the basic rate in paragraph 304 on steel ingots, etc., except the committee has added the following proviso at the end of the paragraph:

"That on hollow bars and hollow drill steel valued at more than four cents per pound, there shall be levied, collected, and paid an additional duty of 1-3/10 cents per pound."

There are no rate changes in paragraphs 307 or 308, namely, boiler or other plate iron or steel and sheets of iron or steel. Neither are there any rate changes in paragraph 309, pertaining to "all iron or steel sheets, plates, bars, etc."

The committee made no rate changes in paragraph 310, dealing with sheets or plates of iron or steel, nor are there any rate changes in paragraph 311 which provided for other articles not especially provided for.

Paragraph 312, dealing with beams, girders, etc., makes no rate change except the committee has added at the end of that paragraph the words, "sheet piling, one-fifth of one cent per pound."

No changes have been made in paragraph 313 dealing with hoop, and band steel, or in paragraph 314, hoop or band iron. In paragraph 315, taking up wire rods, the committee has changed the rate on rods valued at over four cents per pound from six-tenths of one cent per pound, to 20 per cent. No changes have been made in the rates in paragraph 316, round iron or steel wire, nor were any changes made in paragraph 317, all galvanized iron.

Paragraph 327, dealing with cast iron pipe, has been increased from 20 to 30 per cent, and the committee has inserted the following: "and cast iron fittings for cast iron pipe, 30 per cent ad valorem."

No rate changes were made in paragraph 328, dealing with lap welded, butt welded, seamed or jointed iron or steel tubes.

It is expected that the tariff bill will be taken up on the floor of the house the latter part of this week after caucuses have been held by both the Democrats and Republicans. It is said that the majority party will make an effort to bring in a rule which would prevent any amendments made on the floor except committee amendments. Even if this is done it is being freely predicted that it will be the first of June before the house passes the bill.

## Steel Cars Reach Scrap

New York, May 7.—Central Railroad of New Jersey is taking bids on 3800 steel cars to be sold for dismantling into scrap. The scrap involved will be about 45,000 tons, including plates, shapes, bars, axles and wheels.

The dismantling of steel railroad cars during the past couple of years has come to be an important branch of the scrap industry, as within this period the first all-steel cars have come to the end of their period of usefulness. Some time ago the Lehigh Valley railroad sold a large number of steel cars which now are being dismantled by a scrap dealer. More recently a large number of steel cars were sold by the Baltimore & Ohio railroad to Baltimore scrap dealers who have begun to dismantle them.

## Plan 75-Story Building

Chicago, May 7.—Work is to be started June 24 on the first unit of the Crane tower, a 75-story building, proposed for the site between Lake and Randolph streets, by the Railroad Air Rights Corp. representing a New York and Chicago syndicate. The Starrett Building Co. is the general contractor and Walter W. Alschlager is architect. This project represents the development of an air rights leasehold obtained from the Illinois Central railroad for the Apparel Mart building but which was abandoned due to a change in building plans. The Crane Co., Chicago, manufacturer of plumbing and heating supplies, for which the proposed building has been named, will occupy seven floors and will remove from its present building, Michigan avenue and Ninth street.

## Will Make New Type of Continuous Kiln

Philadelphia, May 7.—A new type of continuous kiln is to be manufactured in this country, according to an announcement today from the General Refractories Co., here. This company has obtained an exclusive license for construction of the new kiln of European design. In addition to using the kiln in its own manufacturing plant, the General Refractories Co. will build and sell kilns in the United States, Canada, and South America on a royalty basis. Plans covering the manufacture of these kilns are being worked out at present and details of kiln construction will be published within two or three weeks.

## Rail Rates Adjusted

Washington, May 7.—An examiner for the interstate commerce commission in the complaint of the Buckeye Rolling Mill Co. against the Baltimore & Ohio railroad in a proposed decision has approved current freight rates upon light rails, in carloads, from Newark, O., to certain points in Kentucky, Virginia, West Virginia, Maryland and Pennsylvania. But to points in West Virginia and to Oakland and Cumberland, Md., the present rates have been found prejudicial and it is proposed to correct this.

## Crosley Building Planes

Powel Crosley Jr., president of the Crosley Radio Corp., Cincinnati, has entered the aircraft industry. Details of two planes are announced. One is completed and under test. This is an open monoplane for two passengers and a pilot. The other, not completed, is to be a cabin plane for four persons, including the pilot. Prof. Edward A. Stalker, head of the aeronautics department of the University of Michigan, is the designer.

## Imports Are Varied

Philadelphia, May 7.—Imports at this port during the week ending May 4 included 7000 tons of iron ore from Algeria; 840 tons of chrome ore from Portuguese Africa; 400 tons of spiegeleisen, 50 tons of ferromanganese, two tons of strip steel, two tons of steel wire, six tons of steel bars, 27 tons of steel scrap from the United Kingdom, 11 tons of steel scrap from Germany and 40 tons of ferrochrome from Switzerland.

# Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

RUST ENGINEERING CO., Pittsburgh, has received contracts for installations of furnaces at plants of four steel companies. At the Granite City Steel Co. plant, Granite City, Ill., a Rust triple-fired continuous furnace will be installed in connection with an increase in plate mill capacity. This furnace will have three sets of burners, two of which do the main heating work and the third maintains a constant temperature in the soaking chamber. The Youngstown Sheet & Tube Co. also has purchased a continuous furnace. The Allegheny Steel Co., Brackenridge, Pa., has placed a contract for construction of a Kathner roller-bottom furnace for normalizing full finished automobile body sheets. This furnace will be 155 feet in length, 90 inches in width, and will normalize 200 tons of automobile sheets in 24 hours.

A similar furnace will be installed at the Mercer works of the American Sheet & Tin Plate Co. This furnace will be 155 feet in length and, according to the manufacturer, will be the widest normalizer ever constructed, having an inside width of 90 inches. Oil will be used as fuel.

* * *

HICKMAN, WILLIAMS & CO. have moved from 1521-22 Ford building, Detroit, to 1203-7 of the same building.

* * *

WHITE PLAINS IRON WORKS INC., White Plains, N. Y., has bought a plant at North White Plains and will start production of ornamental cast and wrought iron.

* * *

CAW REGULATOR CO., Chicago, a recently formed company, has started the manufacture of an automatic water softening device for use on the feed water line of locomotive and stationary boilers.

* * *

ALLIED DIE CASTING CORP. has leased from plans a proposed building to be erected at Forty-third avenue and Thirty-ninth street, Long Island City, N. Y. The building will contain 75,000 square feet of floor space and will be four stories, of reinforced concrete, 100 by 180 feet. The lease calls for 21 years, with option of renewal. Shampan & Shampan, New York, architects, have awarded the general contract to the Ettinger Security Construction Corp.

* * *

DOEHLER DIE CASTING CO., New York, has elected the following directors: H. H. Doehler, L. H. Pillion, F. J. Koegler, L. H. Morin, L. B. Kanter, C. O. Miniger, P. V. Shields, Jansen Noyes and H. A. Nehrbas.

* * *

UNION SPRING & MFG. CO., New Kensington, Pa., has bought the Pittsburgh works of the American Sheet & Tin Plate Co. at New Kensington, to provide for future expansion. The plant adjoins the company's present works.

* * *

BLACK & DECKER MFG. CO., Towson., Md., manufacturer of portable electric tools, has appointed Horace T. Potts & Co., Philadelphia, as one of its Philadelphia distributors and the Potts company will carry ample stocks of all types of electric tools manufactured by the company.

* * *

UNITED STATES CAST IRON PIPE & FOUNDRY CO., manufacturer of cast iron pipe and fittings, has changed its name to United States Pipe & Foundry Co. At the stockholders' meeting recently Charles R. Rauth was elected secretary and treasurer and B. F. Haughton, vice president and treasurer, was elected vice president.

* * *

LEEDS & NORTHRUP CO., Philadelphia, has bought property adjoining its plant, with 85,000 additional square feet in a sawtooth building. A connecting wing will join this structure to the main plant. The new space will be used to expand production of all its lines of electrical measuring instruments, heat treating furnaces, combustion control and similar devices.

* * *

RAINEY-WOOD COKE CO., New York, has contracted with the Koppers Construction Co., Pittsburgh, for a battery of 41 combination coke and gas ovens and three gas producers for underfiring them. The ovens will have a daily capacity of about 770 tons of coal per day. When underfired with producer gas they will have a daily output of about 8,200,000 cubic feet of coke oven gas per day.

* * *

ALLIS-CHALMERS MFG. CO., Milwaukee, has taken a contract from the Milwaukee Electric Railway & Light Co. for a steam turbine unit to be installed at its Lakeside power station at St. Francis, a suburb. The unit is rated at 60,000 kilowatts, 13,800 volts, 60 cycles, three phase, operating at 1800 revolutions per minute. The unit will be manufactured at the West Allis plant of the Allis-Chalmers company and will be ready for operation by Sept. 1, 1930.

* * *

UNIVERSAL BUILDING CORP. is the name of a new corporation organized at Sheboygan, Wis., with an initial capital of $15,000 to engage in the selling rights, designing and erecting a new type of fireproof steel building construction applicable to all types and styles of structures. Edward A. Jaul, Sheboygan architect, president, developed and patented the new type of construction to meet the demands for a windproof and earthquake resistant as well as fireproof building.

* * *

PRESSED STEEL TANK CO., Milwaukee, has purchased the assets of the Seamless Steel Products Corp., also located in Milwaukee. The company manufactures cylinders, tanks, and other seamless steel products. The business will be operated by the Pressed Steel Tank Co. as a wholly-owned subsidiary. There will be no change in personnel of either organization for the present. The officers of the corporation are: President, H. O. Brumder; vice president, R. P. Dieckelman; secretary-treasurer, Herman Merker.

* * *

UNION CARBIDE & CARBON CORP. units have moved their offices at Chicago to the new 40-story Carbide & Carbon building at Michigan boulevard and South Water street.

Units of the Union Carbide & Carbon Corp. which will make this new building their Chicago home are:

Linde Air Products Co., Prest-O-Lite Co. Inc., Oxweld Acetylene Co., Oxweld Railroad Service Co., Union Carbide Sales Co., Carbide & Carbon Chemicals Corp., National Carbon Co. Inc., Haynes Stellite Co., J. B. Colt Co. and Acheson Graphite Co. These subsidiaries manufacture oxygen, acetylene, acetylene generators, cutting and welding equipment, carbon products, batteries, flashlights, chemicals, cutting tools, and a number of other products.

* * *

MOLTHOP SUPPLY & MFG. CO. has moved its offices to suite 1665 State Bank building, 120 South LaSalle street, Chicago.

* * *

MORGAN ENGINEERING CO. has moved its New York offices from 150 to 25 Broadway. Mr. Parker is in charge.

* * *

PITTSBURGH STEEL PRODUCTS CO. has opened a district sales office at 506 Shell building, St. Louis, in charge of Morvin Thomas.

* * *

BOLT, NUT & RIVET MANUFACTURERS ASSOCIATION has moved its offices to suite 2613 Grant building, Pittsburgh. Charles J. Graham is president.

* * *

SYMINGTON CO. and Gould Coupler Co. have removed their New York office from the Postum building to the New York Central building, 230 Park avenue.

* * *

WASHINGTON IRON WORKS, Seattle, has opened a factory branch and warehouse at Portland, Oreg., in charge of Herald Synnestvedt.

* * *

HEMP & CO., St. Louis, manufacturers of sheet metal products, have purchased assets of A. Geisel Mfg. Co., St. Louis, and will consolidate the two plants. L. W. Hemp is president.

* * *

EMPIRE STEEL CORP., Mansfield, O., will add to its Falcon plant at Niles, O., to increase its production of full finished sheets. A sheet pack heating furnace and a normalizing furnace will be installed.

* * *

SUPERIOR STEEL & MALLEABLE CASTINGS ASSOCIATION, Benton Harbor, Mich., has moved its Chicago sales office from the McCormick building to Fortieth street and Calumet avenue. P. A. Hill is in charge.

* * *

SOUTH-WAY EQUIPMENT CO., St. Louis, has been organized by J. S. Maher and John Reagan as successor to Maher Equipment Co. to handle railroad and industrial equipment, machine tools, etc.

* * *

A R. GELINAS, 1434 St. Catherine street, Montreal, Can., has been appointed direct representative of the American Hoist & Derrick Co., St. Paul. This territory comprises Ontario, Quebec, and the maritime provinces of Canada.

* * *

BOARDMAN CO., Oklahoma City, manufacturer of sheet metal products and machinery distributor, has taken lease on a building at Eighth street and the Midland Valley railroad tracks for a branch office and warehouse. L. C. Stott will be manager.

* * *

FITZ-CRITTENDEN CO., 910 Commonwealth avenue, Boston, recently incorporated, will manufacture automotive accessories. It plans to build a plant for the manufacture of its devices, which are produced now by contract.

* * *

READING IRON CO., Reading, Pa., has moved its general sales office from the Baer building, Reading, to the New York Central building, 230 Park avenue, New York. All matters pertaining to sales will be handled from that address.

* * *

BUFFALO HOUSE WRECKING & SALVAGE CO., Buffalo, is dismantling the wrought iron rolling mill of Westerman & Co., Lockport, N. Y. This is one of the oldest wrought iron mills in the East and derived its power from excess water of the old Erie canal at Lockport.

* * *

HICKMAN-WILLIAMS & CO., sellers of pig iron, ferroalloys, coal and coke, are locating their Chicago office at 2205 Carbide and Carbon building, 230 North Michigan avenue, Chicago, removing from room 1214 McCormick building, 332 South Michigan avenue.

* * *

SEATTLE-ASTORIA IRON WORKS has changed its name to Croyer-Fox Mfg. Co. following recent purchase of the company by the Continental Can Co. This plant specializes in cannery machinery and equipment and is engaged in shipping much of its product to foreign buyers.

* * *

THOMAS SPACING MACHINE CO., Pittsburgh, has re-elected officers as follows: President, George P. Thomas; vice presidents, George Wittmer and G. H. Hedrick; treasurer, Robert Thomas; secretary, F. A. Coons. Mr. Wittmer succeds the late Julian Burdick. Directors also were re-elected, including the above officers and Charles C. Henderson and Howard Zacharias.

* * *

McGRAW ELECTRIC CO. has sold its wholesale electric supply business at Sioux City, Iowa, and Omaha, Nebr., to the Westinghouse Electric & Mfg. Co. and has bought the Bussman Mfg. Co., St. Louis, manufacturer of fuses, and the Water Center Co., Minneapolis, manufacturer of toasters and similar devices.

* * *

WW. SLY MFG. CO., Cleveland, has taken a contract for installing a sand blast room at the Puget Sound navy yard. It will handle castings up to 15 tons. It also has an inquiry from the government for a similar installation to clean castings up to 20 tons.

* * *

OHIO CARBON CO., Cleveland, has bought the plant of the International Roller Gear Co., 12508 Berea road, Cleveland, to increase its manufacturing space. A. K. Moulton is president of the Ohio Carbon Co., L. L. Stoffel vice president, J. E. Schunck secretary and treasurer and F. C. Aurand assistant treasurer.

* * *

OHIO POWER SHOVEL CO., Lima, O., has established offices in the Graybar building, New York, in charge of R. J. Thomas. Morris Engineering Co., 30 Church street, which was handling the account temporarily, will continue to represent the Ohio Locomotive Crane Co. and the Toledo Crane Co.

* * *

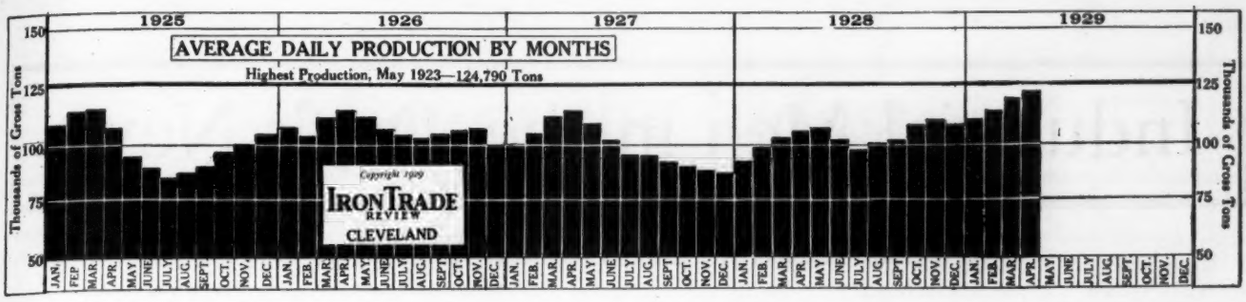
PALMER STEEL CO., Springfield, Mass., is erecting an addition and will install equipment to double facilities for fabricating structural steel. Cabot Construction Co., Chicopee, Mass., has the contract. An additional 10-ton crane will be installed and another 10-ton crane with 100-foot span will be added to south yard.

* * *

TEXAS PETROLEUM PRODUCTS CO., an oil refining company, San Antonio, Tex., announces acquisition of Schimmel Production Co., an oil producing company, through merger and the formation of new company known as Texas Petroleum Co. with capital of $2,500,000. All properties are in the Somerset oil field.

* * *

INTERNATIONAL STEEL CORP., Canton, O., is remodeling and re-equipping the plant formerly operated by the Canton Steel Foundry Co., which it has leased for five years. Steel castings will be produced by a special process. Alexander Blackwood, Chicago, will be general manager.




# Iron Output Is Record for April

PRODUCTION of coke pig iron in April, with an average daily rate of 122,106 gross tons, was the best for any April in history, according to final figures compiled by IRON TRADE REVIEW. The previous best April was in 1923 with a figure of 118,210 tons. Last month's rate was the third highest for any month, being exceeded only by 122,262 tons in June, 1923, and 124,790 tons in May of the same year, the latter being an all-time record. The increase of April over March was 2444 tons per day, or 2.4 per cent.

The April total production of iron of 3,663,167 gross tons likewise was a record for that month, although it has been exceeded in May, June and July of 1923 and March of this year. The output for March was 3,709,518 tons. April, however, was a 1-day shorter month. Production of iron in the first four months of 1929 amounted to 14,024,089 tons, constituting a record, the previous best corresponding period being 13,292,047 tons in 1923.

In April the production of ferromanganese and spiegeleisen totaled 44,406 tons, constituting the highest point since monthly pig iron statistics have been compiled. The previous high figure was 42,230 tons in July of last year.

Relation of production to capacity in April was 88.7 per cent, contrasted with 86.7 per cent in March and 78.0 per cent in March, 1928.

Blast furnaces blown in during April were: In Ohio: Lorain Nos. 2 and 5, National Tube Co. In Pennsylvania: Bethlehem A and Cambria E, Bethlehem Steel Co.; Edgar Thomson H, Carrie No. 5, Isabella No. 2 and New Castle No. 3, Carnegie Steel Co. In Tennessee: Rockdale, Tennessee Products Corp.

Stacks blown out were: In Ohio: Youngstown A, Youngstown Sheet & Tube Co.; Cherry Valley, M. A. Hanna Co. In Pennsylvania: Cambria K, Bethlehem Steel Co.; Monessen No. 2, Pittsburgh Steel Co. In Alabama: North Birmingham No. 4, Sloss-Sheffield Steel & Iron Co. In Colorado: One Minnequa, Colorado Fuel & Iron Co.

**MONTHLY PRODUCTION**

| | 1929 | 1928 | 1927 | 1926 |
|---|---|---|---|---|
| Jan. | 3,433,028 | 2,855,515 | 3,101,346 | 3,319,789 |
| Feb. | 3,218,376 | 2,898,668 | 2,940,604 | 2,923,850 |
| Mar. | 3,709,518 | 3,199,175 | 3,482,107 | 3,458,171 |
| April | 3,663,167 | 3,181,975 | 3,424,377 | 3,438,805 |
| Total 4 mos. | 14,024,089 | 12,135,333 | 12,948,434 | 13,140,615 |
| May | | 3,292,790 | 3,391,067 | 3,477,820 |
| June | | 3,082,340 | 3,089,726 | 3,232,478 |
| July | | 3,072,711 | 2,954,625 | 3,224,663 |
| Aug. | | 3,136,995 | 2,950,674 | 3,200,723 |
| Sept. | | 3,063,593 | 2,782,500 | 3,163,269 |
| Oct. | | 3,373,539 | 2,812,015 | 3,334,206 |
| Nov. | | 3,304,656 | 2,661,863 | 3,237,992 |
| Dec. | | 3,369,784 | 2,698,208 | 3,089,175 |
| Total | | 37,831,741 | 36,289,112 | 39,100,941 |

## Rate of Operation

**(Relation of Production to Capacity)**

| | 1929† | 1928* | 1927‡ |
|---|---|---|---|
| January | 80.3¶ | 67.8 | 71.2 |
| February | 83.3¶ | 73.6 | 74.7 |
| March | 86.7¶ | 76.1 | 79.8 |
| April | 88.7 | 78.0 | 81.2 |
| May | | 78.3 | 77.7 |
| June | | 76.0 | 73.2 |
| July | | 73.2 | 67.7 |
| August | | 74.4 | 67.6 |

**†Based on capacity of 50,367,665 tons as of Dec. 31, 1928. *Based on capacity of 59,605,720 tons. ‡Based on capacity of 51,379,400 tons. ¶Revised. Capacities computed by American Iron and Steel institute.**

**AVERAGE DAILY PRODUCTION**

| | 1929 | 1928 | 1927 | 1926 | 1925 |
|---|---|---|---|---|---|
| Jan. | 110,742 | 92,113 | 100,043 | 107,039 | 108,781 |
| Feb. | 114,942 | 99,954 | 105,021 | 104,423 | 114,788 |
| Mar. | 119,662 | 103,199 | 112,326 | 111,554 | 115,207 |
| Apr. | 122,106 | 106,066 | 114,146 | 114,627 | 107,041 |
| May | 106,219 | 109,388 | 112,187 | 94,642 | |
| June | 102,745 | 102,991 | 107,749 | 89,301 | |
| July | 99,120 | 95,311 | 104,021 | 85,976 | |
| Aug. | 101,193 | 95,183 | 103,249 | 87,328 | |
| Sept. | 102,120 | 92,750 | 105,442 | 90,862 | |
| Oct. | 108,824 | 90,710 | 107,555 | 97,351 | |
| Nov. | 110,155 | 88,728 | 107,933 | 100,775 | |
| Dec. | 108,702 | 87,039 | 99,651 | 104,808 | |
| Ave. | 116,867 | 103,365 | 99,422 | 107,126 | 99,645 |

**DIVISIONS OF PRODUCTION**

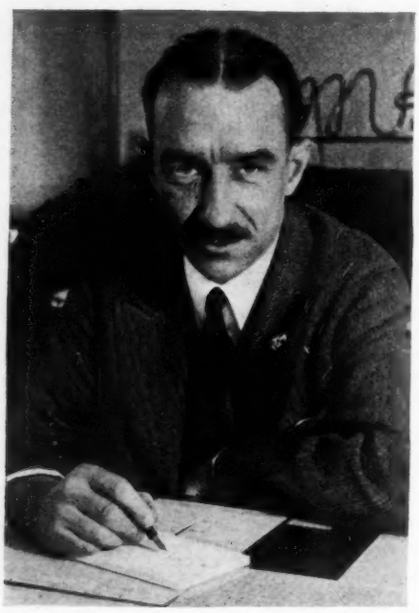
| 1928 | Merchant | Non-merchant | Spiegel and ferro-manganese |
|---|---|---|---|
| Jan. | 649,654 | 2,205,861 | 32,510 |
| Feb. | 579,298 | 2,319,370 | 27,376 |
| Mar. | 597,106 | 2,602,069 | 34,587 |
| Apr. | 586,045 | 2,595,930 | 33,599 |
| Total 4 mos. | 2,412,103 | 9,723,230 | 128,072 |
| May | 596,664 | 2,696,126 | 38,466 |
| June | 589,127 | 2,493,213 | 38,628 |
| July | 584,611 | 2,488,100 | 42,230 |
| Aug. | 563,510 | 2,573,485 | 33,585 |
| Sept. | 580,344 | 2,483,249 | 31,170 |
| Oct. | 643,043 | 2,730,496 | 33,519 |
| Nov. | 632,869 | 2,671,787 | 38,811 |
| Dec. | 686,431 | 2,683,353 | 34,541 |
| Total | 7,288,702 | 30,543,039 | 419,022 |
| 1929 | | | |
| Jan. | 744,448 | 2,688,580 | 37,210 |
| Feb. | 665,648 | 2,552,728 | 34,419 |
| Mar. | 740,966 | 2,968,552 | 37,997 |
| Apr. | 740,311 | 2,922,856 | 44,406 |
| Total 4 mos. | 2,891,373 | 11,132,716 | 154,032 |

**APRIL PIG IRON PRODUCTION**

| | No. in blast last day of month | | —Total tonnage made— | | —Totals— | |
|---|---|---|---|---|---|---|
| | April | March | Merchant | Nonmerchant | April | March |
| Ohio | 46 | 46 | 147,225 | 664,330 | 811,555 | 835,704 |
| Pennsylvania | 78 | 74 | 149,923 | 1,079,342 | 1,229,265 | 1,234,994 |
| Alabama | 17 | 18 | 126,220 | 109,567 | 235,787 | 244,061 |
| New York | 16 | 16 | 100,004 | 143,859 | 243,863 | 245,403 |
| Illinois | 20 | 20 | 125,130 | 264,190 | 389,320 | 397,716 |
| Colorado | 2 | 3 | | | | |
| Indiana | 16 | 16 | | | | |
| Maryland | 6 | 6 | 15,117 | 501,600 | 516,717 | 538,750 |
| Virginia | 1 | 1 | | | | |
| Wisconsin | 0 | 0 | | | | |
| Kentucky | 1 | 1 | | | | |
| Massachusetts | 1 | 1 | | | | |
| Tennessee | 2 | 1 | 26,846 | 74,935 | 101,781 | 103,086 |
| Utah | 1 | 1 | | | | |
| West Virginia | 3 | 3 | | | | |
| Michigan | 4 | 4 | | | | |
| Minnesota | 2 | 2 | | | | |
| Missouri | 0 | 0 | 35,352 | 53,571 | 88,923 | 71,807 |
| New Jersey | 0 | 0 | | | | |
| Texas | 0 | 0 | | | | |
| Spiegel and ferro—all states | .... | .... | 14,494 | 31,462 | 45,956 | 37,997 |
| Total | 216 | 213 | 740,311 | 2,922,856 | 3,663,167 | 3,709,518 |

# Industrial Men in the Day's News

## Strickland Kneass Jr., Chief Engineer, A. M. Byers Co.



*HIS father and grandfather before him accomplished great things in engineering fields, and already he has risen high in his chosen vocation—mechanical engineering.*

*PLANTS of the Carnegie Steel Co., Duquesne, Pa., Youngstown Sheet & Tube Co., Youngstown, O., and Costello Engineering Co., Pittsburgh, have been the spheres of his labors until his appointment with A. M. Byers Co.*

*AMONG his initial executive duties is the supervision of the company's new* $10,000,000 *construction program at Ambridge, Pa., a plant for mechanical puddling.*

FOR at least three generations the name Strickland Kneass has stood for great accomplishments in engineering circles. The third to bear it, Strickland Kneass Jr., bids fair to carry it to new heights. His appointment as chief engineer of the A. M. Byers Co., Pittsburgh and Warren, O., manufacturer of wrought iron pipe, was noted in IRON TRADE REVIEW of Nov. 22, 1928.

Only 17 years after his graduation as a mechanical engineer he was chosen to take charge of this company's construction program at Ambridge, Pa., representing an expenditure of $10,000,000 or more for the manufacture of puddled iron under Dr. James Aston's process. In this process the hand method of puddling gives place entirely to mechanical methods. This, it is declared, is destined to revolutionize the production of this kind of pipe. The process was described in IRON TRADE REVIEW, Feb. 7, 1929.

Mr. Kneass' father (Strickland L. Kneass) at the time of his death, Nov. 25, 1928, unfortunately occurring soon after his son's latest promotion, was vice president of William Sellers & Co., Philadelphia, machine tool manufacturers. He twice had been awarded the John Scott medal by Philadelphia for research work in locomotive boiler injectors and steam flow. From his father in turn, he grasped the engineering guerdon. The paternal grandfather of the present Strickland Kneass Jr., (Strickland Kneass) was at one time assistant to the president of the Pennsylvania railroad. Prominent among his achievements was the laying-out of the original survey of the famous Horseshoe Curve on the Pennsylvania railroad near Altoona, Pa.

Following in his father's footsteps, the present Strickland Kneass Jr. entered steam power work early in his industrial career. He was born at Spring Lake, N. J., Aug. 10, 1889, and received his education at the Blight school, Philadelphia. He later—in 1911—was graduated from the Rensselaer Polytechnic institute, Troy, N. Y., receiving the degree of mechanical engineer.

For two years thereafter he was employed in the steam engineering department of the Duquesne, Pa., works of the Carnegie Steel Co., later transferring his sphere of activity to Youngstown, O., when he was engaged by the Youngstown Sheet & Tube Co., for similar work. In 1916 that company made him assistant steam engineer and in 1925 he was placed in charge of all steam equipment at the various properties of the Youngstown company.

Shortly after that appointment, in fact, that same year, he resigned to become general manager and chief engineer of the Costello Engineering Co., Pittsburgh, furnace designer and contractor, which offices he held until his appointment with the Byers company.

Mr. Kneass is a member of the Engineers' Society of Western Pennsylvania and of the American Society of Mechanical Engineers. Although not an ardent golfing fan, he enjoys an occasional game and is a member of the Edgeworth club, Sewickley, Pa.

# Men of the Industry

DAVID A. CRAWFORD, executive vice president of the Pullman Co., Chicago, widely known in manufacturing and financial circles, was elected president to succeed the late Edward F. Carry. Mr. Crawford began his business career as secretary to Mr. Carry, who then was president of American Car & Foundry Co. Mr. Crawford at one time was vice president and treasurer of Rich Tool Co. of Illinois and president of the Rich Tool Co. of Maine. He now is a director of the Wilcox-Rich Corp., of Detroit, the Harris Trust & Savings bank and the Pullman Trust & Savings bank, of Chicago. He is president of the University club of Chicago and a member of the Chicago Regional Plan commission.

* * *

Ralph E. Peck has been appointed Chicago representative of the Steel Frame House Co., Pittsburgh.

* * *

Friedrich E. Gruetzmacher, formerly connected with the Buick Motor Co. in its foundry, has gone to Germany to take charge of the foundry of Edmund Bocker & Co., Leipzig.

* * *

Alexander Legge, president of the International Harvester Co., Chicago, has been elected a director of the Chicago, Burlington & Quincy railroad to succeed H. H. Holcomb.

* * *

Clarence M. Woolley, chairman of the American Radiator & Standard Sanitary Corp., New York, has been elected to the board of directors of the Johns-Manville Corp.

* * *

A. Y. Gregory, formerly salesman of the Whitehead Bros. Co., Providence, R. I., in the New England district, has been appointed manager of sales in the New York district with headquarters in New York.

* * *

Elmer A. Sperry, president of the American Society of Mechanical Engineers, was guest of honor of the Engineers Society of Milwaukee at a special dinner meeting Friday evening, May 3.

* * *

R. F. Duysters, of the Simmons-Boardman Publishing Co., publisher of *Railway Age* and *Airway Age*, was elected president of the Airbrake association at the thirty-sixth annual convention at the Stevens hotel, Chicago, May 2.

* * *

Robert Dodd resigned recently as president of the Lake Superior Corp., and of its subsidiary, the Algoma Steel Corp., Sault Ste. Marie, Ont., on account of poor health. He retains directorships in both companies. Alexander Taylor, vice president, will perform the duties of the president's office until a successor is appointed.

* * *

Clayton T. Harrison Jr. has been appointed assistant chief engineer of the Cambria plant of the Bethlehem Steel Corp., Johnstown, Pa., to succeed William C. Frank, who has been made chief engineer. Mr. Harrison has been in the employ of the Cambria plant since 1911, when he was graduated from Cornell university.

* * *

William C. Dickerman has resigned as vice president of the American Car & Foundry Co., New York, but remains as a director. Frederick A. Stevenson has been elected vice president, succeeding Mr. Dickerman and increasing the directorate from 10 to 11 members. Mr. Dickerman was recently elected president of the American Locomotive Co.

* * *

Gen. T. C. Dickson, commanding officer of the Watertown, N. Y., arsenal, addressed a dinner meeting of the Milwaukee chapter, American Society for Steel Treating, at the Milwaukee Athletic club, Tuesday evening, May 7. His topic was "Centrifugal Casting of Big Guns." Members of the Engineers Society of Milwaukee attended as invited guests.

* * *

E. C. Hummell has been appointed manager of the foundry of the Otis Steel Co., Cleveland, to succeed J. J. Bever. Mr. Hummell has been identified with the company for several months. After an extended vacation, Mr. Bever will serve the company in an advisory capacity and by August will have completed 30 years' continuous service with the company.

* * *

Prof. Herbert M. Boylston of Case school of applied science, Cleveland, was elected chairman of the Case chapter, Society for the Promotion of Engineering Education at a recent dinner at the Case club.

C. W. Wallace was elected secretary, and Profs. P. J. Zimmers, F. L. Carlton and P. J. Hoover members of the program committee. Dr. William E. Wickenden, new president of Case, is retiring national director of the investigating committee of engineering education.

* * *

Sir W. Peter Rylands, chairman of Pearson & Knowles Coal & Iron Co. Ltd.; Partington Steel & Iron Co. Ltd., and other iron and steel companies of Great Britain, has been elected president for 1930 of the National Federation of Iron and Steel Manufacturers. He succeeds E. J. Fox. The Hon. Roland D. Kitson, chairman of Bolckow, Vaughan & Co. Ltd.; A. J. Grant, managing director of John Brown & Co. Ltd., and E. J. George of the Consett Iron Co. Ltd., were elected vice presidents of the Federation.

* * *

Robert Hall, Lockport, N. Y., was elected president of the American District Steam Co., North Tonawanda, N. Y., at the annual meeting of directors, succeeding G. C. St. John, who continues as a director. Mr. Hall will be general manager as well as president. Judge Norman O. Fish was elected vice president and George H. West secretary.

* * *

Rodney E. McCandless, for 33 years cost expert of the Nash Motors Co., Kenosha, Wis., and predecessor concerns, retired May 1 as cost department head. He is succeeded by his assistant, Alfred G. Connenberg.

* * *

Charles R. Robinson, vice president in charge of railroad sales of Inland Steel Co., Chicago, since December, 1921, was elected a member of the board of directors of that company, succeeding the late Samuel Deutsch. He joined the sales department of Inland Steel Co. in 1904, leaving in 1908 to become general manager of sales of Lackawanna Steel Co., Buffalo, of which company he later became vice president in charge of sales. Late in 1921 he returned to the Inland company.

The board has elected Joseph L. Block, Frank R. Meyer Jr., and Albert C. Roeth as vice presidents of the Inland company. All are in the sales department and have served as

assistant vice presidents for the past several years, Mr. Roeth and Mr. Meyer having been with the company since 1911 and Mr. Block since 1922.

* * *

E. R. Hansen has been made chief engineer of the Acklin Stamping Co., Toledo, O. He formerly was with the McCord Radiator & Mfg. Co. Inc., Detroit.

* * *

Arthur E. Thornton, assistant secretary of the Skinner Chuck Co., New Britain, Conn., has been appointed assistant treasurer and secretary.

* * *

R. J. Thomas has been placed in charge of the recently established branch office established by the Ohio Power Shovel Co., Lima, O., in the Graybar building, New York.

* * *

H. R. Farnsworth has been named president of the Klotz Machine Co., Sandusky, O., recently incorporated. George M. Rinkleff was chosen vice president and J. W. Frank treasurer. P. H. Mielke is secretary.

* * *

H. R. Greer, consulting engineer at the Cambria plant of the Bethlehem Steel Co., Johnstown, Pa., has been appointed temporary plant engineer of the Danville Structural Steel Co., Danville, Pa.

* * *

John M. Price has been appointed Chicago district manager with headquarters at 500 North Dearborn street, for the Allen-Bradley Co., Milwaukee, manufacturer of electrical equipment.

* * *

William K. Wayland now is plant superintendent of the Illinois Malleable Iron Co., Chicago. He formerly was general superintendent of the Wagner Malleable Iron Co., Decatur, Ill.

* * *

Frank Burch has been named head of the factory quality department of the Franklin Automobile Co., Syracuse, N. Y., to succeed B. H. Gilpin, who resigned to become identified with the Pratt & Whitney Co., Hartford, Conn.

* * *

Bertrand W. Hall for four years assistant secretary of the National Association of Purchasing Agents and editor of the association's magazine, has joined the brokerage organization of Clinton Gilbert, 2 Wall street, New York.

* * *

John J. Trapp, formerly plant manager for Billings & Spencer Co., Hartford, Conn., has been appointed general manager of the Lebanon Drop Forge Co., Lebanon, Pa. He has been identified with the Billings & Spencer Co., for 22 years.

* * *

Fred A. Poor, head of Poor & Co., Chicago, has been elected chairman of the board of the Rail Joint Co., New York, 96 per cent of whose stock has been acquired by Poor & Co. The Rail Joint Co., will continue to be operated as an independent company with V. C. Armstrong as president.

* * *

D. C. Schultz, formerly of Alliance, O., has become production manager of Servel Inc., Evansville, Ind. He has had 20 years experience in the trade having been associated with the Morgan Engineering Co., Youngstown Sheet and Tube Co., Vacuum Oil Co., Timken Roller Bearing Co., and Goodyear Tire Co.

* * *

Col. George W. Steele has resigned his connection with the American Car & Foundry Co. to devote his entire time to the affairs of the Brunswick Terminal & Railway Securities Co., 165 Broadway, New York. This company, of which Colonel Steele is president, has a manganese property in Georgia.

* * *

James Warren has resigned as works manager of the Rome Mfg. Co., Rome, N. Y., effective May 31. Before becoming connected with the Rome company, he was manufacturing executive of the Lalance & Grosjean Mfg. Co., and previous to that was works manager of the Superior Steel Corp., Carnegie, Pa.

* * *

C. H. Jaxtheimer, efficiency engineer at the Farrel, Pa., plant of the Carnegie Steel Co., has been appointed assistant superintendent of blast furnaces, succeeding the late Harry H. Heckler. He has been with the Carnegie company since 1914 with the exception of a year as safety engineer at the Sharon, Pa., plant of the Sharon Steel Hoop Co.

* * *

S. C. Watkins, formerly special representative of the Southern Wheel Co., New York, has been elected vice president of the company. His headquarters are at 818 Munsey building, Washington.

S. F. Pryor Jr., representative of the company, also was elected vice president and H. S. Russell was appointed district sales manager at 1414 McCormick building, Chicago.

* * *

George Mathews, superintendent of the Driscoll Wire Co., Shelton, Conn., for several years, has been appointed manager of the West Brookfield, Mass., plant of the Seneca Wire & Mfg. Co., Fostoria, O., formerly the Wheeldon Wire Co., which has been acquired by the Seneca company. Lucian E. Kinn is president and general manager of the Seneca company and A. J. Welly.

* * *

Walter I. Bregman, formerly vice president of the Price Iron & Steel Co., Chicago, iron and steel scrap dealer and broker, has been elected president to succeed his father, Louis I. Bregman, whose death was noted in IRON TRADE REVIEW, May 2. The new president was graduated from the University of Illinois in 1920, served as secretary of the company for a time, and for the past several years has been vice president.

* * *

John A. Love, president of Love, Bryan & Co. and a director in the Fokker Aircraft and Universal Aviation Corporations, has been named chairman of the board, and W. C. Ferguson, president of the Presstite Engineering & Ferguson Segment Block companies, head of the executive committee of Allied Aviation Industries Inc., a recently formed $5,000,000 holding corporation, with headquarters in St. Louis. D. A. Luscombe of Moline, Ill., is vice president.

* * *

Rollin K. Cheney, formerly affiliated with the Halcomb Steel Co., Syracuse, N. Y., subsidiary of the Crucible Steel Co. of America, has been appointed superintendent of the Danville Structural Steel Co., Danville, Pa. He was graduated from Cornell university in 1903 and was connected with the South Side plant of the Jones & Laughlin Steel Corp., Pittsburgh, for several years and then for about 12 years was general superintendent of Sweets Steel Co., Williamsport, Pa., and occupied similar positions for shorter periods with the Southern California Iron & Steel Co., Los Angeles, and the Knoxville Iron Co., Knoxville, Tenn.

* * *

R. W. Gillispie, president of the Jeffrey Mfg. Co., Columbus, O., has been made president also of the Jeffrey Mfg. Co. Ltd., Montreal, which has been organized recently to handle the former company's interests in Canada. R. H. Ross, manager of the Montreal branch, has been made treasurer, and F. N. Diehl secretary.

---

Manufacturers in Massachusetts invested $32,792,682 in plant additions and new machinery in 1928, according to the Associated Industries of Massachusetts. Floor space added involved 2,943,254 square feet. Boston led the state with $10,605,651.

# European Competition Sharper

## Quieter Domestic Markets Forcing British and Continental Producers To Seek Larger Exports—More Than 4000 Tons of British Pig Iron Shipped to United States in April—Reported American Participation in Tube Syndicate Unverified

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, May 7.—(*By Cable*)—Demand for pig iron is improving, reducing idleness at Middlesbrough. More than 4000 tons of iron was shipped to the United States in April. The domestic market now is quiet, owing to the approach of elections. East coast hematite has been sold into the third quarter for export, melters on the Continent making purchases here.

Billets are scarce. Continental producers of steel bars are competing sharply in England, offering bars at £7 2s 6d ($34.55), delivered at Birmingham, against £8 5s ($38.80), the domestic price. The position of the structural steel market in Great Britain is serious owing to the lack of engineering orders. India is buying considerable railroad rolling stock, and some orders also are being received from Germany. The market for galvanized sheets is quiet; demand for tin plate is steady.

A report from Brussels states the iron and steel markets in Belgium are weaker, and new orders scarce. Berlin reports exports fair, with better Indian trade, and some orders from China. American demands are receding. It also is reported from Berlin that American tube manufacturers have joined the international syndicate for alloting production, though this lacks verification.

# British Stacks Relighted To End Famine

BIRMINGHAM, Eng., April 26.—Shortage of Middlesbrough pig iron is to be relieved early next month when Palmers of Jarrow will relight a furnace and Bolckow Vaughan & Co. will increase output. Palmers are also relighting two furnaces on hematite. Practically no prompt iron is for sale in the Middlesbrough area and some makers have practically none to offer before second half. Increasing pressure makes it clear that any increase in output will be readily absorbed. Export trade is active and shipments for the month are already 8000 tons ahead of those in March. The hematite position has eased and buyers have less difficulty in arranging for delivery. Producers and merchants report a substantial business for delivery over third quarter. East coast quality is unchanged at £3 14s ($17.93) per ton for mixed numbers. The coke situation has also been relieved.

**Sterling $4.85**

On the Birmingham exchange pig iron buying has slowed down and some furnacemen talk of iron going into stock, although in other cases orders on books are sufficient to absorb the output for some time. Derbyshire and North Staffordshire iron have generally been regarded as being about the same price, but when values were forced up earlier in the year North Staffordshire went to £3 15s ($18.18) delivered, leaving Derbyshire at £3 12s 6d ($17.90). Within the last week or so an arrangement has been made reducing North Staffordshire No. 3 from £3 15s ($18.18) to £3 13s 6d ($17.80) delivered, again bringing the prices into closer relationship.

Steel scrap, which a week ago touched £4 2s 6d ($20) delivered South Wales, is now on the turn and sellers get no more than £4 ($19.40).

Dorman Long & Co. of Middles-

# Current Iron and Steel Prices of Europe

| Dollars at Rates of Exchange, May 6 | *British* Gross Tons U. K. Ports | | *French* Metric Tons Channel Ports | | *Belgium and Luxemburg* Metric Tons Channel Ports | | *German* Metric Tons Rotterdam or North Sea Port | |
|---|---|---|---|---|---|---|---|---|
| **Export Prices f. o. b. Ship at Port of Dispatch—By Cable** | | | | | | | | |
| **PIG IRON** | | £ s d | | £ s d | | £ s d | | £ s d |
| Foundry No. 3, Silicon 2.50-3.00 | $16.61 | 3 8 6* | $17.46 | 3 12 0 | $17.46 | 3 12 0 | $16.98 | 3 10 0 |
| Basic | 16.13 | 3 6 6 | 16.73 | 3 9 0 | 16.73 | 3 9 0 | 15.76 | 3 5 0 |
| Basic-bessemer | 17.58 | 3 12 6† | 16.73 | 3 9 0 | 16.73 | 3 9 0 | 15.76 | 3 5 0 |
| Hematite, Phosphorus 0.02-0.05 | 17.95 | 3 14 0 | 23.66 | 605* | ..... | ..... | 17.46 | 3 12 0 |
| **SEMIFINISHED STEEL** | | | | | | | | |
| Billets | $31.53 | 6 10 0 | $26.19 | 5 8 0 | $26.19 | 5 8 0 | $25.46 | 5 5 0 |
| Wire rods | 41.83 | 8 12 6 | 30.92 | 6 7 6 | 30.92 | 6 7 6 | 30.92 | 6 7 6 |
| **FINISHED STEEL** | | | | | | | | |
| Standard rails | $37.59 | 7 15 0 | $31.53 | 6 10 0 | $31.53 | 6 10 0 | $32.01 | 6 12 0 |
| Merchant bars | 1.79c | 8 5 0 | 1.31c | 5 19 6 | 1.31c | 5 19 6 | 1.34c | 6 2 0 |
| Structural shapes | 1.60c | 7 7 6 | 1.12c | 5 2 0 | 1.12c | 5 2 0 | 1.12c | 5 2 0 |
| Plates, ship, bridge and tank | 1.76c | 8 2 6 | 1.39c | 6 6 0 | 1.39c | 6 6 0 | 1.40c | 6 7 0 |
| Sheets, black, 24 gage | 2.17c | 10 0 0 | 2.26c | 10 5 0 | 2.26c | 10 5 0 | 2.50c | 11 7 0 |
| Sheets, galvanized, 24 gage, corrugated | 2.90c | 13 7 6 | 3.01c | 13 13 9 | 3.01c | 13 13 9 | 3.43c | 15 12 0 |
| Bands and strips | 2.17c | 10 0 0 | 1.40c | 6 7 6 | 1.40c | 6 7 6 | 1.40c | 6 7 6 |
| Plain wire, base | 2.06c | 9 10 0 | 1.71c | 7 15 0 | 1.71c | 7 15 0 | 1.74c | 7 18 0 |
| Galvanized wire, base | 2.93c | 13 10 0 | 2.12c | 9 12 6 | 2.12c | 9 12 6 | 2.18c | 9 18 0 |
| Wire nails, base | 2.39c | 11 0 0 | 1.79c | 8 2 6 | 1.79c | 8 2 6 | 1.85c | 8 8 0 |
| Tin plate, base box 108 pounds | $ 4.49 | 0 18 6 | ..... | ..... | ..... | ..... | $ 6.79 | 1 8 0 |

*Francs

| Domestic Prices at Works or Furnace—Last Reported | | | Francs | | Francs | | Marks | |
|---|---|---|---|---|---|---|---|---|
| Foundry No. 3 Pig Iron, Silicon 2.50-3.00 | $16.61 | 3 8 6 | $18.57 | 475(2) | $17.24 | 620 | $18.48 | 78 |
| Basic pig iron | 15.76 | 3 5 0 | 19.94 | 510(1) | 16.96 | 610 | 20.86 | 88 |
| Furnace coke | 3.64 | 0 15 0 | 6.06 | 155 | 5.84 | 210 | 5.10 | 21.50 |
| Billets | 31.53 | 6 10 0 | 24.24 | 620 | 26.27 | 945 | 28.69 | 121 |
| Standard rails | 1.79c | 8 5 0 | 1.46c | 810 | 1.63c | 1,250 | 1.51c | 140 |
| Merchant bars | 1.84c | 8 10 0 | 1.36c | 755 | 1.39c | 1,070 | 1.52c | 141 |
| Shapes | 1.71c | 7 17 6 | 1.26c | 700 | 1.22c | 940 | 1.49c | 138 |
| Plates, ship, bridge and tank | 1.87c | 8 12 6‡ | 1.54c | 855 | 1.46c | 1,125 | 1.71c | 158 |
| Sheets, black, 24-gage | 2.28c | 10 10 0 | 2.92c | 1,620 | 2.70c | 2,080 | 2.43c | 225 |
| Sheets, galvanized 24 gage, corrugated | 2.93c | 13 10 0 | 3.78c | 2,100 | 3.84c | 2,950 | 3.78c | 350 |
| Plain wire | 2.06c | 9 15 0 | 1.94c | 1,075 | 2.08c | 1,600 | 2.48c | 230 |
| Bands and Strips | 2.17c | 10 0 0 | 1.51c | 840 | 1.72c | 1,325 | 1.77c | 164 |

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 0d ($3.64) f. o. b. Ferromanganese £21 13s, 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

brough have booked an order for nearly 40,000 tons of steel rails for South Africa. The steel position generally in that district continues to improve. Operations are increasing on the strength of good export orders. The shipbuilding industry is much busier than for some time. There were increases during the first quarter in the tonnage under construction in British yards and also in the tonnage launched, but a falling off in the number of vessels laid down. A chairman of one of the large companies at a recent meeting warned the public not to be too optimistic as to the position and declared that the industry is still far from prosperity.

Semifinished steel is active with prices firm at £6 10s ($31.52) as an average, although Welsh billets can still be bought at £6 7s 6d ($30.91). Makers of small steel bars are able to obtain £8 10s ($41.22), an increase of 5s ($1.21) on recent figures. One works in the north of England is eight or nine weeks behind in deliveries. Continental makers are aware that there is an opening for their products, due to the rising tendency of British prices. The nut and bolt trade in South Staffordshire obtains much of its supply of iron and steel bars from the Continent and the sale of 100 tons of steel from Germany to a Darlaston firm is said to have taken place within the past few days. Continental strip is also in good demand among Midland works. This can be bought at £7 10s ($36.37) delivered, the local buyer thereby effecting a saving of at least £1 ($4.85). Belgian bar iron has practically ousted the Staffordshire common bar, but in the higher qualities of finished iron the prospects are more hopeful. Engineers are reverting to the use of best wrought iron especially where resistance to corrosion is an essential condition. Marked bar makers have wisely refrained from exploiting the position and the price continues £12 ($58.20) per ton. Crown iron is gradually moving upward, Midland prices approaching the level of Lancashire makers.

The quarterly ascertainment under the sliding scale in the West Wales area gives the price of Siemens steel bars at £5 15s 8.78d ($28.04) per ton, which is equivalent to 7½ per cent on the base rate. This means an increase of 1¼ per cent on steelworkers' wages for the next quarter commencing May 5.

In the tin plate trade the position is satisfactory. Most of the business is being booked on the 18s 6d ($4.49) basis and makers who are covered to the end of the year are in some cases asking 18s 9d ($4.55). Export inquiry includes a substantial amount from Continental makers. Home consumers show more interest especially in their requirements for early delivery and plates are steadily absorbed from stock. Output is on a good scale averaging 1000 boxes a week at many works. There is still no sign of any revival in the call for galvanized sheets. The export inquiry is chiefly for small tonnages and shipments this month are not likely to exceed those of March. Prices are unchanged at £13 7s 6d ($64.86) f.o.b. for 24-gage corrugated.

# Belgian Steelmakers Find Books Well Filled at Profitable Prices

**Franc—2.78c**

BRUSSELS, April 24.—(*European Staff Service*)—Attendance at the Brussels iron and steel exchange has resumed normal volume, but the volume of business transacted at the recent meeting was somewhat restricted. Export demand for finished steel products is rather small, and orders from South America, Japan and China have been few. Most of the business was with continental markets which do not produce or only in small quantities. However, the general situation is fair, especially since a revival of business is maintained in the various producing countries, particularly in the United States and Great Britain, exception being made for Germany, where a number of mills are reported to be seeking orders. In the present situation, the various international syndicates for the control of production assist in maintaining a satisfactory level of prices. On the other hand, while orders for rolled products are scarce, the works still are well booked for some time to come.

The abnormal position with regard to the respective prices of finished and semifinished steel continues. There is a difference of only 14s 6d ($3.52) per ton between the price of bars and 2-inch billets, and beams are 4s 6d ($1.10) less than billets. Eventually these discrepancies must disappear, but it is expected that it will not take place in the direction of an increase in the price of merchant bars. The base price of wire rod, No. 6 B.W.G., remains fixed at £6 5s ($30.25) f.o.b. Antwerp, and it is expected this price will be maintained at the next meeting of the entente, which will be held in Berlin. At that meeting the most important point under discussion will be renewal of the international wire rod syndicate. In view of the fact that a syndicate has not yet been formed for manufactured wire products, technically the wire rod syndicate could be dissolved, but in view of the services rendered by the syndicate, it is expected that it will be renewed.

Merchant bars are easier at £6 1s ($29.25) f.o.b. Antwerp. On the other hand, semifinished steel products are firmer, and 2-inch billets now are £5 7s 6d ($26), this price having been obtained by John Cockerill & Co. Sheet bars are £5 8s 6d ($26.25), and transactions on substantial tonnages have been made at that price. The structural market is dull. Normal-profile beams are nominally quoted at £5 3s ($24.90), and British sizes at £5 5s ($25.40).

# Vickers Earns Well in New Lineup

London, April 24.—(*European Staff Service*)—The annual meeting of Vickers, Ltd. showed net profit for the year ended Dec. 31, 1928, was £939,902 ($4,575,000), including dividends from subsidiary companies and investments. For 1927 the profit was somewhat higher, being £992,984 ($4,825,000). This is the second year following the financial reorganization of the company that a profit of nearly one million sterling has been made. It is interesting to note, however, that while the reorganization has been such as to change the concern from a losing to a profit-earning business, the profit last year was less than in the preceding year, which followed the financial reconstruction.

# German Output Grows

Berlin, April 23.—(*European Staff Service*)—The output of pig iron in Germany during March was greater than in February. It consisted of 655,878 tons of basic bessemer, 249,065 tons of ferroalloys, 77,410 tons of foundry, 73,047 tons of hematite, 2997 tons of bessemer, 1665 tons of direct castings, and 1162 tons of forge pig iron.

Steel ingots and castings in March also exceeded February. March output was composed of 1,290,618 tons of ingots and 23,755 tons of steel castings. The ingot output consisted of 679,765 tons of basic open-hearth, 578,867 tons of basic bessemer, 14,798 tons of crucible and electric, 14,030 tons of acid open-hearth steel, and 3218 tons of ingot iron. The following table gives figures in metric tons:

**Metric tons**

| Mon. ave. | Furnace on last day | Pig iron | Steel ingots and casting | Finished steel |
|---|---|---|---|---|
| †1913 | ..... | 909,640 | 993,640 | 970,240 |
| 1926 | •109 | 803,625 | 1,028,470 | 856,340 |
| 1927 | •116 | 1,091,875 | 1,359,225 | 1,069,930 |
| 1928 | •101 | 984,700 | 1,209,770 | 963,550 |
| 1929 | | | | |
| Jan. | 97 | 1,097,980 | 1,469,653 | 1,001,824 |
| Feb. | 96 | 981,695 | 1,269,874 | 864,801 |
| March | 97 | 1,061,214 | 1,314,373 | 904,257 |

†Present boundaries.
•Last day of year.

# French Mine Much Ore

Paris, April 23.—(*European Staff Service*)—During February French ore mines produced almost as much as the record output of January this year. Stocks of ore at the mines have increased. The following table gives figures, in metric tons:

| Mon. ave. | Production | Stocks at end of month |
|---|---|---|
| 1913 | 1,826,500 | ..... |
| 1926 | 3,269,033 | ..... |
| 1927 | 3,723,200 | ..... |
| 1928 | 4,109,780 | ..... |
| 1929 | | |
| January | 4,535,282 | 2,683,084 |
| February | 4,001,486 | 2,803,556 |

# Machinery

**Business of Past Week Remains on High Plane—Deliveries Show No Improvement as Orders Pile Up—More Price Revisions**

PRACTICALLY all districts report machine tool and shop equipment orders which constitute important volume. Buying is general, coming from all industries and in spite of the fact that delivery from factories is becoming more extended. Manufacturers still are hard pressed to fill orders and continue to make price readjustments as cost of materials demand. Western Electric Co. and Lycoming Motors Corp. remained heavy buyers during the past week. Victor Talking Machine Co. has purchased a number of presses and Columbia Graphophone Co. is contemplating substantial buying. The automotive industry is proceeding cautiously so far as equipment expenditures are concerned. Agricultural implement makers are intermittent buyers.

**Chicago, May 7.**—Scattered orders for machine tools, many of two to three items each, are running into important volume. Most distributors in this territory have a good carry-over from April, but generally not as heavy as the carry-over from March. Billings last month were exceptionally heavy for April. One good-sized industrial list remains open in the immediate Chicago district, which includes several shapers, slotters, milling machines and radial drills. Several outstanding single-tool inquiries are open in the Milwaukee territory. A. O. Smith Corp., Milwaukee, closed for a horizontal drill and milling machine, a 5-inch bar machine and several other tools. Scattered buying is reported from the western tractor and implement works, and from central and northern Illinois industrial towns. Sales of special equipment are active. Western railroads are slow to buy against pending lists. Santa Fe closed on a few more tools, including some electric welding equipment. Rock Island has added inquiry for six grinders and a pipe machine to its list, and Chicago, Milwaukee, St. Paul & Pacific is inquiring for a brass boring machine and miscellaneous tools. A western maker of disk grinders has advanced prices 10 per cent and a manufacturer of shapers has advanced 5 to 10 per cent on his line. Stimulated production by some of the machine tool builders has tended to ease deliveries slightly. Shipments on most lines of lathes are being made in four to five weeks, but standard shapers are deferred as much as eight weeks. Many standard and heavy lines of tools cannot be shipped inside of six to ten weeks, one producer naming Sept. 1 as a delivery date.

**Pittsburgh, May 7.**—Machine tool sellers are encountering a large number of inquiries although some hesitancy is seen to close on pending work. Chesapeake & Ohio railroad has bought more than 100 tools for its new shops at Huntington, W. Va., and Russell, Ky. This equipment appears to have been placed some time ago before all inquiries were closed. Bethlehem Steel Corp. will require a number of tools, including turret lathes, for its steel wheel shops and forge and axle shops at the Cambria plant, Johnstown. This is part of the equipment included in a $10,500,000 improvement program recently announced. Westinghouse Electric & Mfg. Co. has closed on several additional items on its second quarter list although a number remain pending.

**New York, May 7.**—Machine tool buying in this district remains at a high rate, with Western Electric Co., Baltimore, and Lycoming Motors Corp., Williamsport, Pa., continued heavy buyers. It is estimated that this latter company has now closed on fully $200,000 of equipment, including a number of milling machines, turret lathes, several grinders and automatics among recent purchases. Victor Talking Machine Co., Camden, N. J., is a further heavy buyer of presses. Chesapeake & Ohio railroad is inquiring for 15 lathes including fine turret lathes. Columbia Graphaphone Co., Bridgeport, Conn., is contemplating substantial purchases.

Prices generally are unchanged, although one manufacturer of turret lathes has recently increased prices on two sizes of its line about 8 and 9 per cent, respectively. Crane buying has been exceptionally light in the past week, although considerable work is under negotiation.

**Cleveland, May 7.**—Dealer trade in machine tools seems to have dropped slightly in this territory, due mostly to cautious buying of the automotive industry. General activity, however, remains at a high level. Manufacturers are well booked up and hopeful of capacity operations for the balance of the year. Deliveries are becoming more extended with about two months the average. A manufacturer of turret lathes is operating its plant at night to maintain production and is seeking additional skilled help. Prices appear stabilized for the present, several manufacturers having made readjustments as conditions demanded.

## CRANE ORDERS PLACED

Ten electric overhead mill type cranes, including six 10-ton, two 30-ton, one 50-ton and one 15-ton, for new plant of Newton Steel Co., Monroe, Mich., to Alliance Machine Co.

Among single orders were: 5-ton 3-motor crane for General Bronze Corp., Long Island City, N. Y., to Shepard-Niles Crane & Hoist Co.; 5-ton 3-motor crane for Bristol Brass Corp., Bristol, Conn., to Shepard-Niles Crane & Hoist Co.; bucket handling crane for International Cement Co.'s subsidiary in Cuba, to unnamed builder.

## CRANE ORDERS PENDING

Two 5-ton electric overhead cranes for David H. Smith & Sons Inc., Brooklyn, N. Y.; early action expected.

Two cranes, including a 30-ton gasoline driven unit and a 30-ton steam locomotive crane for City of Milwaukee; Orton Crane & Shovel is lowest bidder.

## Cambria Plants Will Be Modernized

Johnstown, Pa., May 7.—Further expenditures of $5,000,000 in the modernization program at the Cambria plant of the Bethlehem Steel Corp. this year have been outlined by company officials. These improvements are in addition to those announced a short time ago, which will bring the total expenditure for 1929 in replacements and renewals to $10,500,000.

Major items on the program include a new battery of 77 by-product coke ovens, a complete new blast furnace to replace No. 7 stack at the Franklin works, and replacement of boilers at the Nos. 5 and 6 blast furnaces in the Lower works. Other items include ladle cranes and new charging crane and improvement to other equipment in the Franklin open-hearth plant, replacement of steam drive by electric motors at two works, new machine tools and other equipment. Work will be under way soon and is expected to be completed this year.

## Steel Index Higher

Washington, May 7.—Iron and steel production index number for March was 132, compared with 126 for February and 114 for March of last year taking 1923-1925 at 100 according to the department of commerce.

Nonferrous metals March production index was 127 compared with 125 for February and 108 for March of last year while iron and steel unfilled orders for March were 93 compared with 87 for February and 90 for March of last year.

Foundry Equipment Manufacturers association has published an 8-page booklet containing its code of ethics. The pamphlet also gives a list of the activities of the association, a list of members and officers.

# Obituaries

AXEL F. BACKLIN, 62, of Philadelphia, for many years one of the chief engineers of the American Steel & Wire Co., was killed May 1 by an automobile at Oxford, Mass., while returning to Philadelphia from Worcester, Mass. Mr. Backlin, a native of Sweden, as a young man entered the employ of the Washburn & Moen Co., Worcester, later merged with the American Steel & Wire Co., and became chief draftsman. Upon the death of Fred H. Daniels Mr. Backlin assumed much of the responsibility in the engineering department and was transferred to Cleveland. He partially retired several years ago and since then had acted only in an advisory capacity.

* * *

George E. Meade, president of the Meade Machine Co., Monroe, Mich., was killed in an automobile collision in Monroe, April 18.

* * *

William H. Brady, 61, counsel for Otis Elevator Co., New York, and many other large corporations, died at Roosevelt hospital, New York, April 29.

* * *

Frank Ticknor, president of the Shenango Penn Mold Co., Sharpsville, Pa., died at his home in Sharon, Pa., May 1 of pneumonia. He returned to the Shenango valley two years ago after being in business in Chicago for some time.

* * *

Joseph E. Barnett, director of the Vanadium Alloy Steel Co., the Latrobe Tool Co., Latrobe, Pa., Vulcan Mould & Iron Co., Saxman Coal & Coke Co., and the Conemaugh Iron Works, died May 2. He was president of the Citizens' National bank of Latrobe.

* * *

Robert Weeder Weidenbacker, manager of the Calcutta, India, office of the Baldwin Locomotive Works, Philadelphia, died at Jodhpur, India, April 29, from smallpox. He had been associated with Baldwin since his graduation from the University of Pennsylvania.

* * *

Charles Archibald, 84, for many years associated with the Cape Breton coal industry, died at his home in Halifax, N. S., April 29. He began his career as a mining engineer in Nova Scotia and for many years was in charge of the collieries at Port Morien. In recent years, he had been in the banking business.

* * *

Bordenette P. Philippe, 58, fuel purchasing agent of the Pennsylvania railroad, died May 2 at his home in Strafford, a suburb of Philadelphia. He began his railroad career in the purchasing department of the Pennsylvania in 1889. During the World war he was fuel distributor for the United States railroad administration.

FRANK B. TOOMBS,

General Sales Manager, Chicago Steel & Wire Co., Chicago, whose death was noted in IRON TRADE REVIEW, April 25

* * *

Charles Schramm, 76, retired superintendent of the Halcomb Steel Co., Syracuse, N. Y., division of the Crucible Steel Co. of America, died April 25 of pneumonia. Mr. Schramm was born in Bavaria, Germany, and upon locating in this country, became affiliated with the Sanderson Bros. Steel works, Syracuse. It was under his supervision that the first electric furnace operated in the United States was started.

* * *

Casper Reichl, who for 16 years was secretary and manager of the Spring City Foundry Co., Waukesha, Wis., died April 15, following an operation. Mr. Reichl was born April 24, 1869 at Milwaukee. He started his foundry career with the Milwaukee Bronze Casting Co., Milwaukee and was connected with the firm for 12 years. In 1911 he organized the Spring City Foundry Co., of which he was manager until he retired from business in 1927.

## Sheet and Tin Plate Mill Wages Unchanged

Youngstown, May 7.—Sheet and tin mill wages will remain unchanged through May and June. The average sales price of Nos. 26, 27 and 28 gage black sheets in March and April was 3.00c, as reported by representatives of independent sheetmakers and the Amalgamated Association of Iron, Steel and Tin Workers at a meeting here recently. Sheet and tin plate mill wages remain 25½ per cent above base. Following are comparisons of price averages for the periods designated:

| | | | |
|---|---|---|---|
| March-April | 3.00c | | unchanged |
| Jan.-Feb., 1929 | 3.00c | | unchanged |
| Nov.-Dec. | 3.00c | | unchanged |
| Sept.-Oct. | 3.00c | | unchanged |
| July-Aug. | 3.00c | | unchanged |
| May-June | 3.00c | | unchanged |
| March-April | 3.00c | | unchanged |
| Jan.-Feb., 1928 | 3.00c | | unchanged |
| Nov.-Dec. | 3.00c | —3 | per cent |
| Sept.-Oct. | 3.10c | +3 | per cent |
| July-Aug. | 3.00c | | unchanged |
| May-June | 3.00c | | unchanged |
| March-April, 1927 | 3.00c | —3 | per cent |

## More Boilers Booked

Washington, May 7.—In March 1446 boilers were ordered from 81 manufacturers reporting to the department of commerce. The same makers booked 1028 boilers in February and 1462 boilers in March, 1928. In the first quarter new orders totaled 3569 and in the same period of 1928, 3877.

## Lath Specifications Cut

Washington, May 7.—The bureau of standards, of which George K. Burgess is director, has published the master specifications governing purchases of metal bases for plaster and stucco construction for all government agencies. The specifications govern all classes of metal lath, their construction, measurements and marking for shipment.

# CONSTRUCTION *and* ENTERPRISE

***Concise Timely Business Building Opportunities from Field of Industry***

## East Central

CHAMPAIGN, ILL.—University of Illinois, David Kinley, president, Administration building is contemplating the construction of a boiler house addition and equipment.

CHICAGO—Chicago Screw Co., 1026 South Homan avenue, has plans for a 2-story plant addition. J. B. Fischer, 140 South Dearborn street, is architect.

CHICAGO—A. L. Hansen Mfg. Co., 5087 Ravenswood avenue, manufacturer of automotive hardware and metal specialties has awarded the contract for a 3-story addition.

CHICAGO—Quality Hardware & Machine Co., 5845 Ravenswood avenue, has awarded contract for a 1-story addition to machine shop, 76 x 150 feet.

CHICAGO—Universal Stamping & Mfg. Co., 2839 North Western avenue, manufacturer of metal specialties, screw machine products, gear cutting and polishing equipment, has awarded contract for a 2-story plant addition, 107 x 174 feet.

CHICAGO HEIGHTS, ILL.—Zouri Drawn Metals Co., 1805 East End avenue, will soon award contract for 1-story and basement plant addition, 93 x 150 feet. Rebori, Wentworth, Dewey & McCormick Inc., 332 South Michigan avenue, are architects.

CICERO, ILL.—P. E. Hummel, 1600 West Fulton streeth, Chicago, has plans to build a 1-story and basement machine shop, 87 x 125 feet. C. E. Frazier, 64 West Randolph street, Chicago, architect, is taking bids.

FRANKLIN PARK, ILL.—Joslyn Mfg. & Supply Co., 120 South LaSalle street, Chicago, manufacturer of electrical equipment and supplies, has awarded contract for a 1-story plant here. (Noted Dec. 27.)

HARVEY, ILL.—Whiting Corp., manufacturer of foundry equipment, cranes, and railroad supplies is planning to build a 1-story addition. Perkins, Chatten & Hammond, 160 North LaSalle street, Chicago, are architects.

ROCK ISLAND, ILL.—Reynolds Engineering Co., manufacturer of tools, jigs, etc., has awarded contract for a 1-story plant addition, 50 x 106 feet.

SPRINGFIELD, ILL.—City plans waterworks improvements including wells, purification plant, boiler equipment, etc. J. E. Smith is mayor.

INDIANAPOLIS—Pennsylvania railroad, J. T. Ridgely, superintendent of Indianapolis division, has awarded contract for construction of a 20-stall roundhouse addition, addition to power plant, and new machine shop, to John F. Casey Co., Aspinwall, Pittsburgh, Pa.

INDIANAPOLIS—Allison Engineering Co., Speedway City, plans to expend approximately $1,000,000 soon for plants and equipment to manufacture airplane engines and superchargers, according to E. V. Rickenbacker and associates, who purchased the Allison Engineering Co.

MT. VERNON, IND.—John Staples plans to construct a 2-story addition to his foundry.

RICHMOND, IND.—Richmond Fireproof Door Co., Center street, plans to build a plant addition, 40 x 140 feet.

SOUTH BEND, IND.—Electric Sprayit Co., West Sample street, C. A. MacDonald, secretary, 1715 Portage avenue, has plans for plant.

## Resale News

LAND, buildings, machinery and equipment of the Cron Co., bankrupt, Piqua, O., will be sold at auction May 23 by the Industrial Plants Corp. This company conducted a woodworking plant and equipment includes complete machinery for this purpose, trucks, motors, generators and small tools.

* * *

Surplus machinery in the plant of the Velie Motors Corp., Moline, Ill., was sold at auction May 8 by Samuel L. Winternitz & Co., and Michael Tauber & Co., auctioneers. The sale included eight horizontal and vertical millers, 25 universal, plain, slab and hand millers, three multiple drill presses, 50 radial drills, multiple drills, hole hogs and drill presses, 55 lathes, turret lathes and screw machines, woodworking, sheet metal and structural machinery.

* * *

Equipment of the Stewart-Walker Foundry Corp., Southington, Conn., was sold at auction April 23.

## Sales Calendar

*May 23—Auction of land, buildings and equipment of the Cron Co., Piqua, O.*

WILLIAM FETT, 457 Associated building, architect, is taking bids.

TERRE HAUTE, IND.—Indiana state normal school, L. N. Hines, president, 217 North Seventh street, is having plans drawn for a 1-story power plant. Johnson, Miller, Miller & Leager, 919 Ohio street, Terre Haute, are engineers and architects.

ALBION, MICH.—Decker Screw Products Co. has awarded contract for a 1-story plant and machine shop, 55 x 195 feet.

CASPIAN, MICH.—The Wisconsin Michigan Power Co., Milwaukee, has let the main contract to C. R. Meyer & Sons Co., 50 State street, Oshkosh, Wis., for the construction of a substation here, to cost $127,000 with equipment. Roy Otto is local manager.

DETROIT—Electro Chemical Pattern Co., 3975 Beaufait avenue, will build a 1-story plant addition, 30 x 70 feet.

DETROIT—Lindmere Machine & Tool Co., 4135 Vermont avenue, recently incorporated to manufacture tools, dies, etc., advises it is building a plant at 9610 Sorrento street, Detroit. (Noted May 2.)

LANSING, MICH—Lansing Stamping Co., South Penn avenue, has started construction of a plant addition. Estimated cost $100,000.

L'ANSE, MICH.—W. S. Prickett, proprietor of a dam site at Hersley Rapids, ten miles from this city, is preparing for an extensive power development. No estimate of cost is available as yet.

ONTONAGON, MICH.—The Northern Acquisition Co., a new corporation, of which Frank H. Spies, Minneapolis, is manager, is planning a hydroelectric generating plant and system here to cost upward of $8,000,000. It is expected to start work shortly after July 1.

ST. JOSEPH, MICH.—Auto Specialties Mfg. Co., J. W. Tiscornia vice president and general manager, is having plans drawn for foundry addition. F. E. Davidson, 53 West Jackson street, Chicago, is architect and engineer.

CLEVELAND—Chase Brass & Copper Co., Waterbury, Conn., awarded contract for construction of the second unit of its plant here to the Austin Co., 16112 Euclid avenue, Cleveland. At the same time it also awarded contract for the power house, which will have three 500 horsepower boilers, to the Austin Co. (Noted Jan. 17.)

CLEVELAND—Cleveland Union Terminals Co., Terminal Tower, is taking bids for an electric locomotive repair shop in the Collinwood yards of the New York Central railroad, 171 x 223 feet. The shop will be equipped with a blacksmith shop, electric repair shop, tool room, motor generator and boiler room, etc.

CLEVELAND—Globe Steel Barrel Co., 8205 Franklin avenue, N. W., has purchased the old Cleveland Railway power house at the foot of Washington avenue, N. W., which it will improve

for increased manufacturing requirements. The following equipment will be purchased; bake ovens, presses, conveying system and machinery for making steel drums, etc., according to D. W. Sanders, treasurer.

ELYRIA, O.—Fox Furnace Co., 206 Washington avenue, M. Suppes vice president, has awarded contract for addition to plant and foundry. (Noted March 14.)

DAYTON, O.—The war department announced that bids covering part of the army's general housing program will be advertised for during the next few months. Included in the building project is a power house at Wright field, Dayton, O. Estimated cost is $300,000.

HAMILTON, O.—Estate Stove Co., East avenue, Hamilton, O., has awarded contract to Benzing & Son, 709 South Ninth street, for a 1-story machine and mechanical shop, 42 x 108 feet, and a 1-story foundry addition, 30 x 56 feet. The buildings and equipment will cost about $40,000. (Noted April 18.)

BLUEFIELD, W. VA.—West Virginia Water Service Co. is said to be planning installation of pumping machinery and equipment in connection with waterworks improvements. Filtration equipment will also be installed.

BURLINGTON, WIS.—Bernard Ferring Co., 1900 North Kedvale avenue, Chicago, manufacturing church furniture, has purchased the plant of the Burlington Basket & Veneer Co., and will remodel and retool it at a cost of about $35,000.

FORT ATKINSON, WIS.—Creamery Package Mfg. Co., 1243 West Washington boulevard, Chicago, will build an addition, 95 x 100 feet, to its plant here, manufacturing equipment for creameries and cheese factories. The work will cost about $50,000 complete. W. W. Cornish is local manager.

MILWAUKEE—Generating Gear Co., R. C. Frink president, 1244 Twenty-fourth aveune, has awarded contract for 1-story plant addition, to Byrne Bros., 311 Burleigh street.

MILWAUKEE—International Harvester Co., 784 Park street, is starting work on a 1-story brick and steel unit, 95 x 300 feet, to be used as a manufacturing addition, storage house and repair shop. It will cost about $100,000 with full equipment. Paul F. Schryer is general manager.

OCONOMOWOC, WIS.—Esline Co., 610 Michigan street, Milwaukee, manufacturer of portable steel buildings, is completing a new plant here which will specialize in the fabrication of steel-frame, sheet steel airplane hangars.

SHEBOYGAN, WIS.—This city is contemplating building a filtration plant. Harry Donohue Engineering Co., 608 North Eighth street, city engineer; Alvord, Burdick & Howson, 8 South Dearborn street, Chicago, are consulting engineers, now drawing plans. (Noted March 28.)

# North Atlantic

BRIDGEPORT, CONN.—Bridgeport Hardware Co., 461 Iraniston avenue, has awarded contract for a 1-story plant addition, 100 x 100 feet, to T. J. Pardy Construction Co., 1481 Seaview avenue, Bridgeport. (Noted Jan. 17.)

DERBY, CONN.—Hershey Metal Products Co. has awarded contract for a 1-story plant, 60 x 100 feet, Kinne & Palmer, 256 Main street are architects.

ELMWOOD, CONN.—Wire Mold Co., 410 Asylum street, Hartford, Conn., is planning to build a 2-story addition, 98 x 200 feet. Plans are by Greenwood & Noerr, 525 Main street, Hartford.

WATERBURY, CONN.—Bristol Co., manufacturer of recording instruments, has awarded contract for plant addition to W. J. Megin, 51 Elm street, Naugatuck, Conn. (Noted Nov. 1.)

NORTH ANSON, ME.—North Anson Mfg. Co., J. P. Elton president, 1495 Thomaston street, plans to rebuild woodworking plant recently damaged by fire. Estimated cost $100,000.

BALTIMORE—Continental Can Co., 100 East Forty-second street, New York, has awarded contract to Lee Paschall, American National Bank building, Richmond, Va., for plant additions and alterations to cost about $100,000.

EAST BOSTON, MASS.—Bethlehem Shipbuilding Corp., 100 Milk street, Boston, has awarded contract for machine shop addition, 90 x 225 feet. (Noted March 14.)

NEW BEDFORD, MASS.—Norlander Machine Co., 463 South First street, is having plans prepared for a 1-story machine shop. A. L. Lucus, North Dartmouth, Mass., is architect.

REVERE, MASS.—American Galvanizing Co., 83 Florence street, plans to build a 1-story plant at Everett and Beach streets, 50 x 100 feet.

SOMERVILLE, MASS.—J. L. Porter, Oxford street, Cambridge, Mass., has awarded contract for a 1-story machine shop at 50 Grove street.

WORCESTER, MASS.—Thompson Wire Co., 115 Stafford street, has awarded contract for construction of a 1-story plant 60 x 110 feet.

MANHASSET ISLE, N. Y.—American Aeronautical Corp., Eleventh avenue and Whitestone Landing, Flushing, N. Y., Paul G. Zimmerman vice president, plans to build terminal, including plant and school. Lockwood-Greene Engineering Co. Inc., 100 East Forty-second street, New York, is architect and engineer.

WHITE PLAINS, N. Y.—White Plains Iron Works Inc. has bought a plant at North White Plains, N. Y., and will soon begin production.

EMPORIUM, PA.—Sylvania Products Co., manufacturer of radio tubes, has awarded contract for plant to Rust Engineering Co., 311 Ross street, Pittsburgh.

JERMYN, PA.—West Mountain Coal Co. plans to install power equipment in connection with proposed rebuilding of coal breaker, recently damaged by fire.

LEBANON, PA.—Johnson-Farmer Chain Co., 133 Cumberland street, advises it recently incorporated with the object of making improvements and extensions to its present plant. (Noted April 18.)

PHILADELPHIA—E. G. Budd Co., Twenty-fifth and Hunting Park avenue, manufacturer of automobile bodies, has awarded the contract for a 2-story plant addition, 31 x 142 feet.

PHILADELPHIA—Leeds & Northrup Co., 4901 Stenton avenue, manufacturer of recording and control instruments, advises it has purchased a 1-story building with about 85,000 square feet of floor space.

PHILADELPHIA—Dodge Steel Corp., Hellerman street and State road, has awarded contract for addition to foundry, 81 x 116 feet.

WASHINGTON, PA.—Washington Mould, Machine & Foundry Co. is having plans prepared for a foundry. Carlem Engineering Co., 6949 Lynn Way, Pittsburgh, is engineer.

# Southern States

TAMPA, FLA.—American Cyanamid Co., 535 Fifth avenue, New York, will start construction of the first unit of its new plant near here as soon as preliminary work on the site is completed, according to H. L. Mead, Florida manager for the company. Estimated cost is $3,500,000.

NEW ORLEANS—Southern Air Transport Inc., A. P. Barrett president, has taken a lease at Menefee Airport on the St. Bernard road and will erect a machine shop for repair of planes.

HICKORY, N. C.—Blue Ridge Products Co. has awarded contract to R. M. Perry for a 2-story ice cream plant, 45 x 60 feet, including cold storage plant, and boiler plant.

SPRING HOPE, N. C.—C. W. Lassiter of Spring Hope Cotton Oil Co., is said to be interested in installation of 500-ton capacity fertilizer mixing plant.

TULSA, OKLA.—Braniff Airlines Inc., Paul R. Braniff, 2004 West Sixteenth street, Oklahoma City, division of Universal Airlines, plans large hangar here, terminals at San Angelo, Tex., and Kansas City, Mo. Estimated cost of total improvements $1,000,000.

MEMPHIS, TENN.—Plough Chemical Co. will start work immediately on its plant at South and East Parkway. Hanker & Cairns, Hill building, Memphis, are architects, and Jackson & Moreland, 31 St. James avenue, Boston, engineers.

RICHMOND, VA.—Searchlight Metals Mfg. Corp., 706 North Belmont avenue, recently incorporated, advises it is constructing two

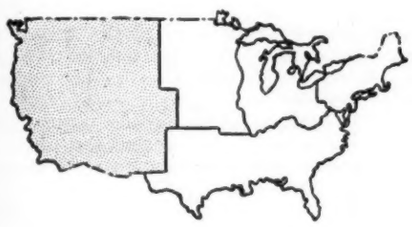
2-story units, 40 x 130 feet, and has yet to purchase the following equipment: furnace brick, foundry flasks, burners, and brass furnaces. (Noted May 2.)

## West Central

CEDAR RAPIDS, IOWA—This city, F. E. Young, city engineer, has completed plans for construction of a filtration plant. Alvord, Burdick & Howson, 8 South Dearborn street, Chicago, have been chosen as consulting engineers.

DES MOINES, IOWA.—Globe Machinery & Supply Co., 205 Court avenue, has awarded contract for plant addition. F. W. Swanson, is president. (Noted Nov. 15).

ST. LOUIS—Procter & Gamble, Cincinnati, has awarded contract to H. K. Ferguson Co., Hanna building, Cleveland, for alterations to plant, including boiler house.



## Western States

HILLSIDE, ARIZ.—Bagdad Copper Corp., 111 Broadway, New York, plans to build a 3000-ton mill here, according to officials of the company.

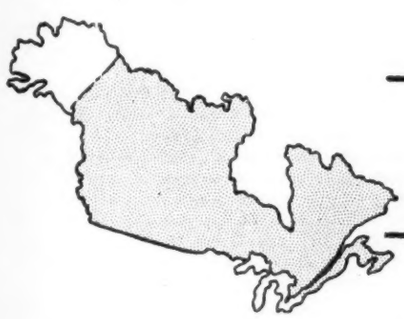
ALVISO, CALIF.—Alviso Salt Co., Russ building, San Francisco, is said to be planning to construct a 1-story main plant. Estimated cost $300,000, including equipment.

COLORADO SPRINGS, COLO.—Alexander Aircraft Co., J. Don Alexander, president, plans establishing four branch assembling plants in different parts of the United States.

PORTLAND, OREG.—The machine shop of the Albina Marine Works was recently damaged by fire.

SALT LAKE CITY, UTAH—Counterflo Heater Co., T. J. Yates, president, plans construction of foundry. Contract for foundation has been awarded to Magdiel Bros.

SALT LAKE CITY, UTAH—City council is said to be planning installation of pumping machinery and equipment in connection with proposed improvements to municipal waterworks, for which preliminary surveys are under way.



## Canada

WINNIPEG, MAN.—The Manitoba Bridge & Iron Works has let a number of contracts in connection with $15,000 addition to plate shop at Logan and Arlington streets.

GLACE BAY, N. S.—British Empire Steel Co., Cement building, Montreal, Que., has completed plans for constructing power plant here. Estimated cost $2,000,000.

HALIFAX, N. S.—Bids are being received by Pickings & Wilson, architect, Roy building, for the erection of a 2-story, concrete construction, machine shop on Water street here, to cost $15,000, for Wm. Collins & Son, Barrington street.

CHATHAM, ONT.—Dowsley Steel & Axle Co. has awarded the contract for plant addition to the John V. Gray Construction Co., Bartlett building, Windsor, Ont.

HAWKESBURY, ONT.—Gatineau Power Co., Jackson building, Ottawa, Ont., was to start work May 1 on the erection of a substation here to cost $335,000.

HAMILTON, ONT.—Bids are being received by S. H. Kent, city clerk, until June 5, for one 400-horsepower diesel engine; motors, switching equipment, etc., to be installed in the Ferguson avenue waterworks and pumping station. Engineer, W. L. McFaul.

NIAGARA FALLS, ONT.—Carborundum Co., Buffalo avenue, Niagara Falls, N. Y., and Stanley street, Niagara Falls, Ont., will start work at once on the erection of an addition to its plant here. The general contract has been awarded to the Gardner Construction Co. Ltd., 22 Cross street, Welland, Ont., and the steel contract to the Standard Steel Construction Co., 55 Main street, Welland.

PORT COLBORNE, ONT.—International Nickel Co. of Canada Ltd. has awarded general contract to Fraser-Brace Ltd., 107 Craig street west, Montreal, Que., for the erection of a $1,500,000 addition to its works here.

SUDBURY, ONT.—Falconbridge Nickel Mines Ltd. will start breaking ground immediately for the erection of a smelter at Boucher Lake to have a daily capacity of 200 tons.

TORONTO, ONT.—Toronto Iron Works, Royal Bank building, plans to build plant including machine shop, punch and shear shop, etc. (Noted April 11.)

TORONTO, ONT.—Harbor commission is contemplating purchase of approximately $75,000 worth of equipment to pump sand from the Coatsworth cut to the Eastern beaches. A booster pump and other equipment will also be required.

WINDSOR, ONT.—Windsor Gas Co., Chatham street, proposes to build a gas plant on Grand Marais and Howard streets, to cost $1,000,000.

MONTREAL, QUE.—Waterpower development on the Matawin river to cost $1,000,000 is proposed by the Shawinigan Water & Power Co., Power building. Construction work to be carried out by the Shawinigan Engineering Co. Engineer, C. R. Lindsay, Power building.

## Recent Incorporations

CHICAGO—Triplex Electrical Mfg. Co., 3150 West Fifty-first street, has been incorporated with $50,000 capital to manufacture and deal in electrical devices, by C. C. Buckels, D. N. McCullagh and V. G. Jensen.

CHICAGO—General Engineering Works, 4701 West Division street, has been incorporated with $150,000 capital to manufacture and sell screw machine products of all kinds, by Claude A. Kneupfer, William J. Tarrant and William H. Tarrant.

CHICAGO—Gits Bros. Mfg. Co., 1940 South Kilbourn avenue, has been incorporated with $100,000 capital to manufacture and deal in oil cups, and mechanical devices, by Remi J. Gits.

CHICAGO—LaSalle Metalcraft Co., 609 North LaSalle street, has been incorporated with $20,000 capital to manufacture and deal in lamps, book ends, advertising novelties, etc., by Meyer B. and Maurice Rapaport.

CHICAGO—Home Sanitary Equipment Co., 3348 North Paulina street, has been incorporated with $100,000 capital to manufacture and sell windmills, air compressors, pneumatic pumps, etc., by Mary G. Poggi.

CHICAGO—American Ozone Co., 310 South Michigan avenue, has been incorporated with 100,000 share of no par value stock to manufacture and sell machinery and equipment, by M. J. Atkinson.

CICERO, ILL.—Gilko Mfg. Co., 4616 West Twenty-first street, has been incorporated with $10,000 capital to manufacture and sell metal stampings, hardware and electrical specialties, by D. S. Gillespie, D. J. and John Kuski.

BOSTON—Noyes Corp. has been incorporated with $500,000 capital to manufacture and deal in motors, engines, machines, etc. Willard I. Morse, 155 Grove street, Wellesley, Mass., is president and treasurer.

EASTHAMPTON, MASS.—Ryan Valve Co., 41 Union street, has been incorporated with $75,000 capital to manufacture valve fittings, plumbing, heating and gas fitting supplies. William H. Ensign, Westfield, Mass., is president.

FRAMINGHAM, MASS.—Model Airplane Mfg. Co. has been incorporated with 5000 shares of stock with no par value, to manufacture all

kinds of model airplanes. Thomas B. Harrington, 21 Newton place, Framingham, is treasurer.

FITCHBURG, MASS.—Fitchburg Stamping & Plating Co. has been organized to manufacture metal parts for toys and other stampings. John A. Williams, Fitchburg, is one of the incorporators.

QUINCY, MASS.—Improved Metal Weatherstrip Co., 1431 Hancock street, has been incorporated wtih $5000 capital to manufacture metal weatherstrips. Ernest C. Edwards, 47 Huckins avenue, Atlantic, Mass., is president.

SOMERVILLE, MASS.—General Metal Products Co. has been incorporated with 1000 shares no par value stock to manufacture metal specialties, machinery appliances, tools and parts. William J. Delaney, Somerville, is president.

SOMERVILLE, MASS.—General Industries Corp., 63 Gorham street, has been incorporated with $100,000 capital to manufacture radios, appliances and apparatus, etc. John M. Grattan, 21 Benedict street, Somerville, is president.

SOMERVILLE, MASS.—Tucker Form Erection Co. has been incorporated with $100,000 capital to manufacture metal and wood forms, Harry Golden, 366 Commonwealth avenue, Boston, is president.

SPRINGFIELD, MASS.—Standard Abrasive Wheel Co. has been incorporated with $50,000 capital by Willard D. Leshure, Springfield.

SWAMPSCOTT, MASS.—Hume Pipe of N. E. Inc. has been incorporated with $150,000 capital to manufacture, import and export all kinds of pipe conduits, and other products of iron, steel or other building material. James H. Cooke, Hartford, Conn., is president and treasurer; William D. Manchester, Swampscott, vice president.

WORCESTER, MASS.—O. & J. Labeling Co. has been incorporated with $100,000 capital to manufacture and sell automatic labeling machines.

WORCESTER, MASS.—Royal Bed Spring Co. has been incorporated with 100 shares no par value stock to manufacture bed springs. Israel Chafitz, 1 Berkman street, is president and treasurer.

DETROIT—Northern Electrotype Co., 41 Burroughs avenue, Detroit, has been incorporated to manufacture and deal in electrotypes, etc., by William A. Smith.

DETROIT—Swiss Boring Inc. has been incorporated with $25,000 capital to manufacture machinery, by Harold Hansom, 12875 Coyle avenue, Detroit.

DETROIT—Lindmere Machine & Tool Co., 4135 Vermont avenue, has been incorporated with $50,000 capital to manufacture tools, jigs, dies, etc., by Theodore G. Lindmere.

DETROIT—Capitol Pipe & Nipple Works, 2762 West Jefferson avenue, has been incorporated with $25,000 capital to manufacture and deal in pipe nipples, by Sam Mendlowitz, Detroit.

DETROIT—Pioneer Automatic Merchandising Corp., 910 Michigan Theater building, has been incorporated with $50,000 capital to manufacture and sell automatic selling boxes or machines, by Harry H. Landay.

DETROIT—Standard Steel Shelving Co., 3000 Union Trust building, has been incorporated with 2500 shares of no par value stock to manufacture and deal in metal equipment, by Fred L. Jacobs.

KALAMAZOO, MICH.—Clark Boiler & Tank Co., 316 West Willard street, has been incorporated with $25,000 capital to manufacture and sell steam boilers, tanks, etc., by Oliver E. Wolcott, Henry Koets, and George D. Clark, all of Kalamazoo.

MARINE CITY, MICH.—Michigan Gray Iron Foundry, 1024 Tenth street, Marine City, has been incorporated with $50,000 capital to manufacture and sell metal castings and general foundry work, by George Kramer, Marine City.

ST. LOUIS—United Products Co., 1013 Russell boulevard, has been incorporated to manufacture sheet metal specialties. H. J. Miller is president.

CAMDEN, N. J.—Allen-Wales Machines Inc. has been incorporated with 1000 shares common stock to manufacture calculating machines, by New Jersey Corporation, Guarantee & Trust Co., Camden, N. J.

NEWARK, N. J.—Motor Parts Corp. has been incorporated with $100,000 capital to manufacture auto parts, by A. A. Lindhal, Irvington, N. J.

NORTH BERGEN, N. J.—Barclay Mfg. Co. Inc. has been incorporated with $50,000 capital to manufacture tools, etc., by Carey & Lane, Jersey City, N. J.

PATERSON, N. J.—Paterson Airport Corp. has been incorporated with $100,000 capital to manufacture airships, by Roemer & Cole, Paterson, N. J.

NEW YORK—Just-Rite Steel Cabinet Works has been incorporated with $20,000 capital, by D. Handler, 38 Park Row, New York.

# New Trade Publications

INDUSTRIAL COUNSEL—Knoeppel Industrial Counsel, Terminal Tower, Cleveland, has issued a booklet devoted to defining what it essays to do and why.

SHAPERS—Power rapid traverse as standard equipment on its shapers is described in a current bulletin by the Cincinnati Shaper Co., Cincinnati. Illustrations show the traverse as built into the shaper.

TANKS—William B. Scaife & Sons Co., Oakmont, Pa., manufacturer of tanks for various purposes, has issued a leaflet devoted to its invisible seam tank. Method of joining metal with neatness is illustrated.

TOOL STEELS—Jessop Steel Co., Washington, Pa., manufacturer of tool steels, has issued a booklet covering the various grades of its steels. It contains much information as to qualities, sizes, uses and various data.

WELDING—A. O. Smith Corp., Milwaukee, has issued a bulletin describing its welding processes in the production of various types of vessels for high pressure use, as well as various other steel products.

GASOLINE CRANE—American Hoist & Derrick Co., St. Paul, in a current bulletin features its three-speed gasoline crane with automotive gear shift. Operation and construction of the crane is illustrated and details are shown.

LUBRICATION—Morgan Engineering Co., Alliance, O., is distributing a bulletin on lubrication with special reference to the devices it manufactures. Cranes, rolling mills, charging machines, transmissions and other machinery are included.

SKID PLATFORMS — Corrugated pressed steel skid platforms manufactured by the Lewis-Shepard Co., Boston, are described in a current bulletin by that company. Various uses to which they can be put in industrial plants are shown.

WATER WHEELS—James Leffel & Co., Springfield, O., builder of water wheels, has issued a leaflet presenting construction details of its wheels and a list of installations. An installation for the Arkansas Light & Power Co., Pine Bluff, Ark., is illustrated.

CRANES—Whiting Corp., Harvey, Ill., is circulating a bulletin describing a new crane just perfected in its shops. Details of its design and construction are described and illustrated. New features are emphasized and general specifications show how it is constructed. A list of users is appended.

METALLIC ROOFING—Wheeling Metal & Mfg. Co., Wheeling, W. Va., has issued a booklet on its Spanish tile in lead-covered metal for permanent roofs. Various forms for ornamentation and various shaped roofs are illustrated. Advantages of the lead coating are described.

LUBRICATION—The current issue of its monthly publication on lubrication by the Texas Co., New York, is devoted to factors which may affect power development in the automotive engine. It discusses various factors of lubrication and allied factors of the motor and makes suggestions as to better conditions.

POWER TRANSMISSION—Diamond Chain & Mfg. Co., Indianapolis, has issued a booklet on means to reduce the cost of power transmission. It treats modern engineering practice in power drives, explains how roller bearings have been applied and shows savings in power and maintenance costs. Typical installations are described and illustrated.

REFRACTORIES—North American Refractories Co., through one of its members, Crescent Refractories Co., Curwensville, Pa., has issued two folders, one giving a list of its products and the other a discussion of heat penetration in refractories by M. C. Booze, director of research and tests, American Refractories institute, Pittsburgh.

SAND HANDLING EQUIPMENT—Link-Belt Co., Chicago, has issued a series of folders on its sand handling equipment. One describes its sand reclaiming and shakeout unit and the other two contain descriptions of sand handling installations at the plants of the American Manganese Steel Co. at Burnside and Chicago Heights, Ill., and at the malleable iron division of the General Motors Co., Saginaw, Mich. The folders are well illustrated.

COMPRESSORS—Sullivan Machinery Co., 400 North Michigan avenue, Chicago, in a current bulletin describes its angle compound air compressors direct-connected to diesel engines. It describes and illustrates some of the details of construction of that type of compressor and also tells some of the factors to be considered when the purchase of such a machine is contemplated. The bulletin also discusses the advantages of oil engine drives for compressors. It contains reproductions from photographs of many installations for various purposes and contains a table of specifications for that type machine. The last two pages of the bulletin are devoted to a discussion of vertical type air compressors direct connected to oil engines, a list of specifications and a reproduction from a photograph of a typical installation.

# A Timken-Equipped Steel Mill

## *A List of the Timken Tapered Roller Bearing Applications in the Steel Mill of The Timken Steel and Tube Company*

*There are instances where Timken Bearings on roll necks have completely paid for themselves in 9¾ months*

### ROLLING MILL UNIT

**35″ Mill**

Ingot Transfer Table · · Approach Table Side Shaft · · Run-out Table Side Shaft · · Lifting Table Side Shaft · · All Table Rollers · · Shear—Approach Table Rollers · · Shear—Approach Table Side Shaft · · Shear—Run-out Table Rollers · · Shear—Run-out Table Side Shaft · · Transfer Table—Gear Drive and Sprocket and Idler Sheaves.

**28″ Mill**

Mill Roll Necks · · Top and Bottom Screwdowns · · Gear Drive · · Pinion Stand · · Tilting Transfer Tables—Rollers and Drives · · Run-out Table—Rollers · · Side Shaft on all Tables.

**22″ Mill**

Mill Roll Necks · · Pinion Stand · · Gear Drive · · Rope Type Bloom Transfer, Drives, Drum Shafts and Sheave Wheels · · Approach Tables — Gear Drives, Rollers and Line Shafts · · Run-out Tables—Gear Drives, Rollers and Line Shafts · · Tilting Tables—Gear Drives, Rollers and Line Shafts · · No. 150 Billet Shear Drive.

### TUBE MILL UNIT

**36″ Piercing Mill**

Mill Roll Necks · · Gear Drive · · Table Rollers for Run-out Table · · Side Shaft for Run-out Table · · Pierced Billet Conveyor—Rollers.

**28″ Automatic Rolling Mill**

Roll Necks · · Gear Drive.

**26″ Reeler**

Roll Necks · · Gear Drive · · In-going Table Rolls.

**Sinking Mill**

Roll Necks · · Gear Drive.

### MERCHANT MILL

Roll Necks on all Stands · · Gear Drives—Pinions and Gear Shafts · · Approach Table—Side Shafts and Rollers · · Transfer Shafts · · Run-out Table Shafts and Rollers · · Rotary Flying Crop Shear, Upper and Lower Cutterheads.

### FURNACES

**Continuous Re-heating Furnaces**

40 ton Continuous Bloom Furnaces; Gear Drive for Table Rollers · · Run-out Tables—Rollers and Side Shafts · · Disappearing Stops · · Gear drive and Rack Mechanism for Double Furnace Pusher.

20 ton Continuous Billet Furnaces; Drive for Pinch Roll Pusher at Discharge End.

30 ton Continuous Billet Furnace; Charging Pusher Mechanism · · Charging Table Rollers · · Run-out Table Rollers.

**Annealing Furnaces**

700 KW Pusher Type Normalizing Furnaces; Pusher Mechanisms— Longitudinal and Transverse · · Driving Motors for Pushers · · Gear Drive for Run-out Table · · Driving Motor for Run-out Table · · Run-out Table Rollers.

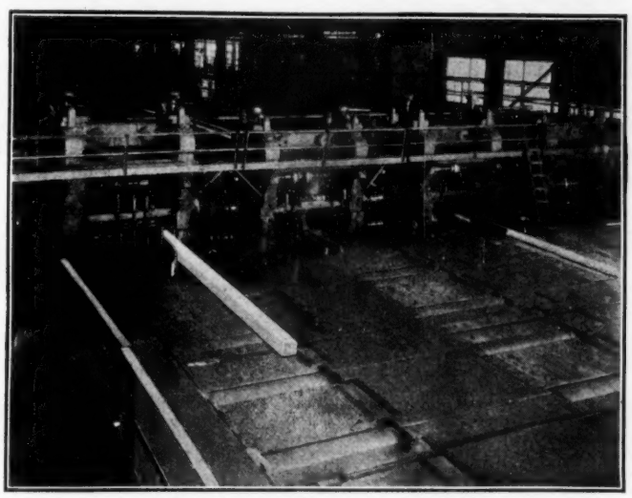
### HOT SAWS

**48″ Hot Saw**

Saw Arbor.

**60″ Hot Saw**

Saw Arbor and Motor Shaft.



*The 22″ Rolling Mill*

### HOT BEDS

**Flat Bed Skid Type**

Transfer Shafts.

**264 Foot Hot Bed**

Side Shafts · · Table Rollers

### CRANES

**Standard Hoist Type**

5 ton · · 6 ton · · 10 ton · · 15 ton · · 20 ton · · 35 ton · · 50 ton; Trolley Drive Shaft · · Hoist Shaft · · Bridge Motion Shaft · · Gear Drives—All Motions · · Track Wheels, Sheaves, and Hook Blocks.

**Special Type**

7 ton Soaking Pit Cranes; Trolley Drive Shaft · · Bridge Motion Shaft · · Gear Drives—All Motions · · Tongs Lowering, Lifting and Turning Shafts · · Track Wheels.

165 ton Ladle Cranes; Trolley Drive Shaft · · Hoist Shaft · · Bridge Motion Shaft · · Worm Gear Drives—All Motions · · Track Wheels, Sheaves and Hook Blocks.

### CHARGERS

**5 Ton Floor Type**

Trolley Drive Shaft · · Ram Drive Shaft · · Ram Turning Shaft · · Bridge Motion Shafts · · Worm Gear Drives—All Motions · · Track Wheels.

### CARS

**Ingot Cars**

Wheels.

**Charging Box Cars**

Wheels.

### INGOT CHARIOT

Track Wheels · · Table Rollers · · Side Shaft · · Gear Drives.

### INDUSTRIAL HAULAGE LOCOMOTIVES

**Gasoline Engine-Driven**

Wheels.

**Gas-Electric**

Generator Armature Shaft · · Motor Armatures · · Gas Engine Governor · · Journals.

**TIMKEN**
***Tapered***
**ROLLER BEARINGS**

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

# Pipe and Tube Prices—Plate Extras

## Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

**Butt Weld**

| | Black | Galvanized |
|---|---|---|
| ⅛-inch | 45 | 19½ |
| ¼ and ⅜-inch | 51 | 25½ |
| ½-inch | 56 | 42½ |
| ¾-inch | 60 | 48½ |
| 1 to 3-inch | 62 | 50½ |

**Lap Weld**

| | | |
|---|---|---|
| 2-inch | 55 | 43½ |
| 2½ to 6-inch | 59 | 47½ |
| 7 to 8-inch | 56 | 43½ |
| 9 and 10-inch | 54 | 41½ |
| 11 and 12-inch | 53 | 40½ |

**REAMED AND DRIFTED**

**Butt Weld**

| | | |
|---|---|---|
| 1 to 3-inch | 60 | 48½ |

**Lap Weld**

| | | |
|---|---|---|
| 2-inch | 53 | 41½ |
| 2½ to 6-inch | 57 | 45½ |

**EXTRA STRONG—PLAIN ENDS**

**Butt Weld**

| | | |
|---|---|---|
| ¼-inch | 41 | 24½ |
| ⅜ and ½-inch | 47 | 30½ |
| ½-inch | 53 | 42½ |
| ¾-inch | 58 | 47½ |
| 1 to 1½-inch | 60 | 49½ |
| 2 to 3-inch | 61 | 50½ |

**Lap Weld**

| | | |
|---|---|---|
| 2-inch | 53 | 42½ |
| 2½ to 4-inch | 57 | 46½ |
| 4½ to 6-inch | 56 | 45½ |
| 7 to 8-inch | 52 | 39½ |
| 9 and 10-inch | 45 | 32½ |
| 11 and 12-inch | 44 | 31½ |

**DOUBLE EXTRA STRONG**

**Butt Weld**

| | | |
|---|---|---|
| ½-inch | 42 | 32½ |
| ¾ to 1½-inch | 45 | 35½ |
| 2 to 2½-inch | 47 | 37½ |

**Lap Weld**

To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.

## Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

**THREADS AND COUPLING**

**Butt Weld**

| | Black | Galv. |
|---|---|---|
| ¼ and ⅜-inch | +11 | +36 |
| ½-inch | 23 | 5 |
| ¾-inch | 28 | 11 |
| 1 and 1¼-inch | 31 | 15 |
| 1½ and 2-inch | 35 | 18 |

**Lap Weld**

| | | |
|---|---|---|
| 1¼ and 1½-inch | Upon application | |
| 2-inch | 23 | 9 |
| 2½ to 3½-inch | 28 | 12 |
| 4 to 6-inch | 30 | 17 |
| 7 and 8-inch | 29 | 16 |
| 9 to 12-inch | 26 | 11 |

**REAMED AND DRIFTED**

**2-inch to 6-inch—Two points less than above**

**EXTRA STRONG, PLAIN ENDS**

| | | |
|---|---|---|
| ¼ and ⅜-inch | +13 | +48 |
| ½-inch | 23 | 7 |
| ¾-inch | 28 | 12 |
| 1 to 2-inch | 34 | 18 |

**Lap Weld**

| | | |
|---|---|---|
| 2-inch | 29 | 13 |
| 2½ to 4-inch | 34 | 20 |
| 4½ to 6-inch | 33 | 19 |
| 7 and 8-inch | 31 | 17 |
| 9 to 12-inch | 21 | 8 |

**DOUBLE EXTRA STRONG**

**Butt Weld**

| | | |
|---|---|---|
| ½-inch | +47½ | +59½ |
| ¾-inch | +28 | +40 |
| 1-inch | +34 | +46 |
| 1¼-inch | +28 | +40 |
| 1½-inch | +27 | +39 |

**Lap Weld**

| | | |
|---|---|---|
| 2 and 2½-inch | +13 | +25 |
| 3 to 4-inch | + 8 | +17 |
| 4½ to 6-inch | + 9 | +18 |
| 8-inch | +12 | ..... |

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

## Boiler Tubes

**Pittsburgh carload discounts**

**STEEL (Lap Weld)**

| | |
|---|---|
| 2 and 2¼-inch | 40 off |
| 2½ and 2¾-inch | 48 off |
| 3-inch | 54 off |
| 3¼ to 3¾-inch | 56 off |
| 4-inch | 59 off |
| 4½ to 6-inch | 48 off |

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. On 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

**CHARCOAL IRON**

| | |
|---|---|
| 1½-inch | 1 off |
| 1¾-inch | 8 off |
| 2 and 2¼-inch | 13 off |
| 2½ and 2¾-inch | 16 off |
| 3-inch | 17 off |
| 3¼ to 3½-inch | 18 off |
| 4-inch | 20 off |
| 4½-inch | 21 off |

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

**SEAMLESS COLD DRAWN**

| | |
|---|---|
| 1-inch | 63 off |
| 1¼ and 1½-inch | 55 off |
| 1¾-inch | 39 off |
| 2 and 2¼-inch | 34 off |
| 2½ and 2¾-inch | 42 off |
| 3-inch | 48 off |
| 3¼ and 3½-inch | 50 off |
| 4-inch | 53 off |
| 4½, 5 and 6-inch | 42 off |

**SEAMLESS HOT ROLLED**

| | |
|---|---|
| 1¾-inch | 39 off |
| 2 and 2¼-inch | 40 off |
| 2½ and 2¾-inch | 48 off |
| 3-inch | 54 off |
| 3¼ and 3½-inch | 56 off |
| 4-inch | 59 off |
| 4½, 5 and 6-inch | 48 off |

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

**SEAMLESS STEEL MERCHANT BOILER TUBES**

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

**SEAMLESS STEEL MECHANICAL TUBING**

**Base Discounts on New List July 1, 1925**

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

**SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES**

| Outside diameter | Net prices per foot f.o.b. Pittsburgh Gage | Price |
|---|---|---|
| 2-inch | 12-gage | 14¼c |
| 2-inch | 11-gage | 15c |
| 2-inch | 10-gage | 16c |
| 2¼-inch | **12-gage** | **16c** |
| 2¼-inch | 11-gage | 17c |
| 2¼-inch | 10-gage | 18c |
| 3-inch | 7-gage | 33c |
| 5⅜-inch | 9-gage | 50c |
| 5½-inch | 9-gage | 52c |

Plus usual extras for forming and for lengths over 24 feet.

## Plate Extras

**BASE**

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

**All Plates Rectangular or Otherwise**

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

| | |
|---|---|
| Over 100 to and including 110 inches | .05c |
| Over 110 to and including 115 inches | .10c |
| Over 115 to and including 120 inches | .15c |
| Over 120 to and including 125 inches | .25c |
| Over 125 to and including 128 inches | .50c |

Plates less than ¼-inch or lighter than 11 pounds per square foot.

| | |
|---|---|
| Over 72 to and including 84 inches | .10c |
| Over 84 to and including 96 inches | .20c |
| Over 96 to and including 100 inches | .30c |
| Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier. | |

**GAGE**

**Plates Not Exceeding 72 Inches Wide**

Plates less than ¼-inch gage, to and including $\frac{3}{16}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

**Plates Over 72 Inches Wide**

Plates less than ¼-inch gage, to and including $\frac{3}{16}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c
Plates ordered 7.65 pounds square foot .30c

**QUALITIES**

| | |
|---|---|
| Pressing steel | .10c |
| Flange steel (boiler grade) | .15c |
| Ordinary firebox steel | .20c |
| Stillbottom steel | .30c |
| Locomotive firebox steel | .50c |
| Marine steel | 1.50c |
| Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel | .10c |
| High tensile hull steel subject to U. S. navy department or equivalent specifications | 1.00c |
| Boiler steel subject to U. S. navy department specifications, classes A-B | 1.50c |
| Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel. | |

**Floor Plates**

Checkered plates ..... 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

**INSPECTION**

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

**CUTTING**

**LENGTH OR DIAMETER**

**All Plates, Rectangular or Otherwise**

| | |
|---|---|
| Five feet and over up to published limit of length, but not over 80 feet | No extra |
| Under 5 feet to 3 feet inclusive | .10c |
| Under 3 feet to 2 feet inclusive | .25c |
| Under 2 feet to 1 foot inclusive | .50c |
| Under 1 foot | 1.55c |
| Over 80 feet to 100 feet inclusive | .10c |

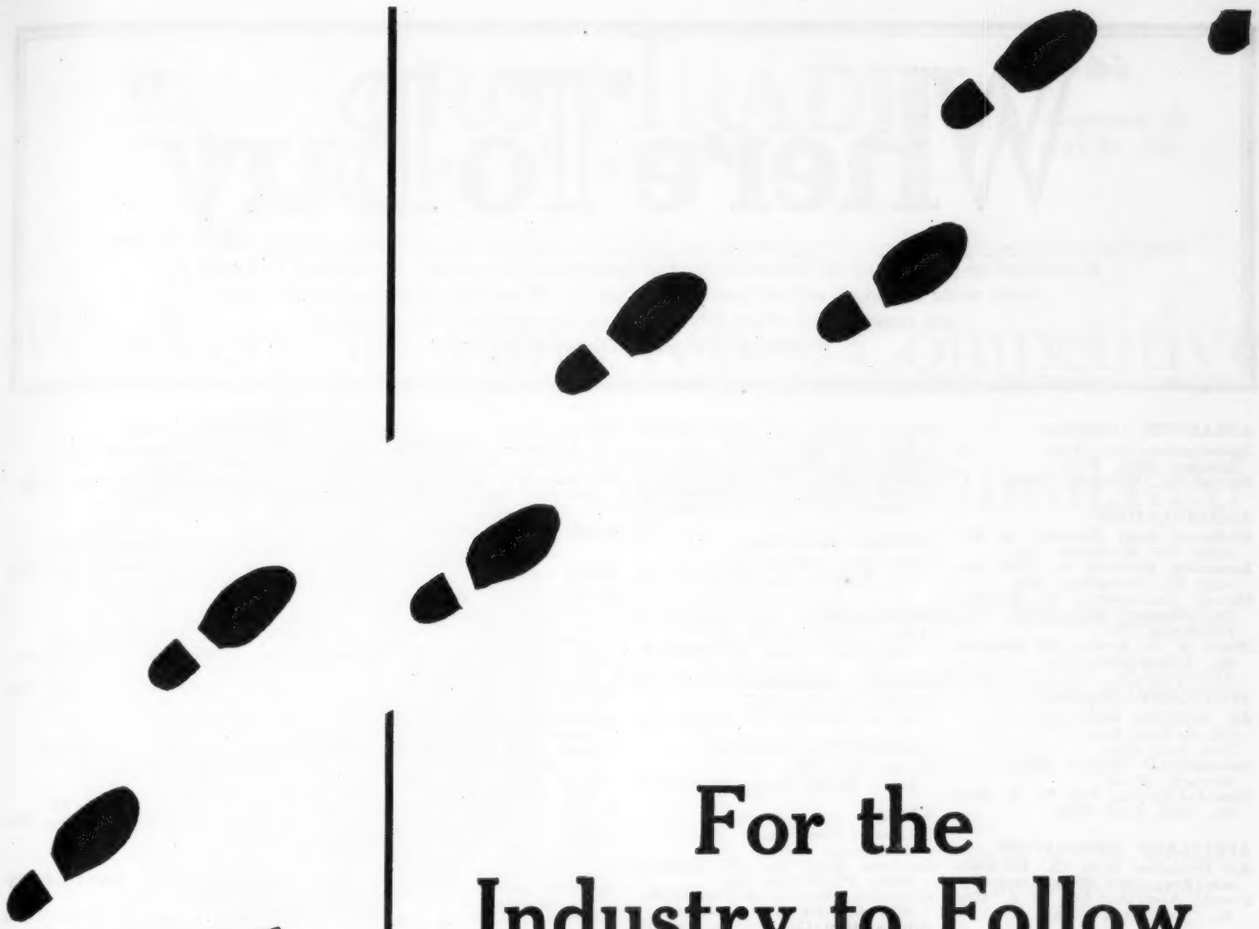
Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

**Regular Sketches**

With not more than four straight cuts. (Including straight taper plates)
Additional extra ..... .10c

**Irregular Sketches**

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)
Additional extra ..... .20c



# For the Industry to Follow

**Refinements of pattern and molding practice are of little value if the metal going into the mold does not have uniformly good physical properties.**

**Consistent with Sivyer's twenty years of progress in controlling the variables of steel casting production and quality, this important point is not overlooked.**

**Sivyer never uses common "Doping the Pot" methods to produce alloy steels — an extremely hazardous practice of adding alloying elements to ordinary carbon steel as it is being poured into hand ladles or pots.**

**Sivyer makes all alloys in electric furnaces where the metal can be properly controlled to absorb the alloying elements—where the alloys will be uniformly distributed throughout the heat.**

*This book "Dependability in Steel Castings" outlines the more important steps which Sivyer has made during the past score of years to control the variables in steel casting production and quality. As such a book is of tremendous interest to all associated with industry today, a copy will be sent you for the asking.*

# SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

# "Where-To-Buy"

A classified by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertisers and by referring to advertisement you can get full particulars about products.

**ABRASIVES (Polishing)**
Carborundum Co., The, Niagara Falls, N. Y.
Norton Co., Worcester, Mass.

**ACCUMULATORS**
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

**ACETYLENE (Dissolved)**
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

**ACETYLENE GENERATORS**
Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

**ACETYLENE IN CYLINDERS**
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

**ACIDS (Pickling)**
American Chemical Paint Co., Ambler, Pa.

**ADAMITE ROLLS**
American Adamite Co., The, 410 Oliver Bldg., Pittsburgh, Pa.

**AIR COMPRESSORS—See COMPRESSORS (Air)**

**ALLOYS**
Driver-Harris Co., Harrison, N. J.
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

**ALUMINUM**
Bummerill Tubing Co., Bridgeport, Pa.

**ALUMINUM (Vanadium)**
Vanadium Corp. of America, 120 Broadway, New York City.

**ALUMINUM BRONZE (Acid Resisting)**
Duriron Co., Inc., The, Dayton, Ohio.

**ANGLES, TEES, CHANNELS—See STEEL (Structural)**

**ANNEALING BOXES**
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Petroleum Iron Works Co., The, Sharon, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bk. Bldg., Pittsburgh.

**ANVILS (Cast Steel)**
West Steel Casting Co., 805 E. 70th St., Cleveland, O.

**APPRAISALS**
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

**ARCHES (Suspended)**
Detrick, M. H., Co., 140 S. Dearborn St., Chicago, Ill.

**ARCHITECTS (Industrial)**
Austin Co., The, 16112 Euclid Ave., Cleveland, O.

**AXLES**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., 3675 E. 78th St., Cleveland.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.

**BABBITT METAL**
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Williams Alloy Products Co., The, Elyria, Ohio.

**BALING PRESSES**
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

**BANDS (Iron)**
Bethlehem Steel Co., Bethlehem, Pa

**BANDS AND HOOPS (Galvanized Strips)**
Sharon Steel Hoop Co., Sharon, Pa.

**BAR BENDERS**
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

**BARGES (Steel)**
American Bridge Co., 71 Broadway, New York City.

**BARRELS (Steel)**
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

**BARS (Alloy)**
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.

**BARS (Concrete Reinforcing)**
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

**BARS (Iron)—See IRON (Bar)**

**BARS (Steel)**
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Pacific Coast Steel Co., Hunter-Dulin Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Timken Roller Bearing Co., The, Canton, O.
Youngstown Sheet & Tube Co., Youngstown, O.

**BEAMS, CHANNELS, ANGLES, ETC.**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Phoenix Iron Co., The, 20 So. 15th, Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

**BEARING METAL**
Williams Alloy Products Co., The, Elyria, Ohio.

**BEARINGS (Ball)**
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

**BEARINGS (Journal)**
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.
Williams Alloy Products Co., The, Elyria, Ohio.

**BEARINGS (Motor)**
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

**BEARINGS (Roller)**
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

**BEARINGS (Tapered Roller)**
Timken Roller Bearing Co., The, Canton, O.

**BEARINGS (Thrust)**
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

**BEARINGS AND BUSHINGS (Brass and Bronze)**
Erie Bronze Co., 402 W. 19th St., Erie, Pa.
Williams Alloy Products Co., The, Elyria, Ohio.

**BENDING AND STRAIGHTENING MACHINES**
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.

**BENZOL AND TOLUOL RECOVERY PLANTS**
Koppers Construction Co., The, 1301 Koppers Bldg., Pittsburgh, Pa.

**BILLETS (Alloy and Carbon Steel)**
Central Alloy Steel Corp., Massillon, O.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Washburn Wire Co., Phillipsdale, R. I.

**BILLETS (Die Stock Steel)**
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.

**BILLETS (Forging)**
Bethlehem Steel Co., Bethlehem, Pa.
Central Alloy Steel Corp., Massillon, O.
Erie Forge Co., Erie, Pa.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Heppenstall Forge & Knife Co., 47th and Hatfield Sts., Pittsburgh, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Wood, Alan, Steel Co., Conshohocken, Pa.

**BILLETS (Forging, Alloy Steel)**
Bethlehem Steel Co., Bethlehem, Pa.

**See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above**